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ABSTRACT

This volume of working papers includes two papers concerned with syntactic analysis in English. The first paper deals with a number of problems that arise in conjunction with the necessary, allowed, or disallowed coreferentiality of a complement sentence subject with some noun-phrase in a higher sentence. The author seeks to prove that the machanism involved, generally stated to be governed by verbs, is indeed a subject-subject constraint applicable to a rather natural verb-class. Previous theories are discussed, and the relevant generative-semantic assumptions for the present theory are provided. The hypothesis of the second paper is that, in English, agents are just deep subjects. If a noun phrase is the agent of a sentence, then it is the subject of that sentence in the underlying structure. Terms are defined and the theory is explained. This volume lists all titles appearing in previous volumes of the working papers. (Author/VM)

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WORKING PAPERS IN LINGUISTICS NO. 7

by

Alexander Grosu and Gregory Lee

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Foreword

The Computer and Information Science Research Center of The Ohio State University is an inter-disciplinary research organization which consists of the staff, graduate students, and faculty of many University departments and laboratories. This report presents research accomplished in cooperation with the Department of Linguistics.

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Ilse Lehiste
Chairman
Linguistics

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Director
CIS Research Center

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No. 1 (December, 1967)

"The Grammar of 'Hitting' and 'Breaking'", Charles J. Fillmore, pp. 9-29. (To appear in Studies in English Transformational Grammar, R. Jacobs and P. Rosenbaum, eds., Ginn-Blaisdell.)
"The English Preposition WITH", P. Gregory Lee, pp. 30-79.
"Relative Clauses and Conjunctions", Sandra Annear Thompson, pp. 80-99.
"On Selection, Projection, Meaning, and Semantic Content", D. Terence Langendoen, pp. 100-109.
"Some Problems of Derivational Morphology", Sandra Annear Thompson and Dale Elliott, pp. 110-115.
"The Accessibility of Deep (Semantic) Structures", D. Terence Langendoen, pp. 118-127. (To appear in Studies in English Transformational Grammar, R. Jacobs and P. Rosenbaum, eds., Ginn-Blaisdell.)
"Review of Haim Gaifman, 'Dependency Systems and Phrase-Structure Systems', Information and Control 8 (1965), pp. 304-337", pp. 128-136.
"Diphthongs Versus Vowel Sequences in Estonian", Ilse Lehiste, pp. 138-148. (Also in Proceedings of the VI International Congress of Phonetic Sciences, Prague (1967), Academia: Prague, 1970, pp. 539-544.)

No. 2 (November, 1968) (OSU-CISRC-TR-68-3)

"Lexical Entries for Verbs", Charles J. Fillmore, pp. 1-29. (Also in Foundations of Language 4 (1968), pp. 373-393.)
"Review of Componential Analysis of General Vocabulary: The Semantic Structure of a Set of Verbs in English, Hindi, and Japanese, Part II, by Edward Herman Bendix. I.J.A.L. Vol. 32, No. 2, Publication 41, 1966." Charles J. Fillmore, pp. 30-64. (Also in General Linguistics 9 (1969), pp. 41-65.)
"Types of Lexical Information", Charles J. Fillmore, pp. 65-103. (Also in Studies in Syntax and Semantics, F. Kiefer, Ed., D. Reidel: Dordrecht-Holland (1970), pp. 109-137; and Semantics: An Interdisciplinary Reader in Philosophy, Linguistics, Anthropology, and Psychology, Jacobovits and Steinberg, eds., Cambridge University Press (to appear).)
"'Being' and 'Having' in Estonian", Ilse Lehiste, pp. 104-128. (Also in Foundations of Language 5 (1969), pp. 324-341.)

No. 3 (June, 1969) (OSU-CISRC-TR-69-4)

"Do from Occur", P. Gregory Lee, pp. 1-21. .

"The Syntax of the Verb 'Happen'", Dale E. Elliott, pp. 22-35.

"Subjects and Agents", P. Gregory Lee, pp. 36-113.

"Modal Auxiliaries in Infinitive Clauses in English", D. Terence Langendoen, pp. 114-121.

"Some Problems in the Description of English Accentuation", D. Terence Langendoen, pp. 122-142.

"Some Observations Concerning the Third Tone in Latvian", Ilse Lehiste, pp. 143-158.

"On the Syntax and Semantics of English Modals", Shuan-fan Huang, pp. 159-181.

No. 4 (May, 1970) (OSU-CISRC-TR-70-26)

"Copying and Order-changing Transformations in Modern Greek", Gaberell Drachman, pp. 1-30.

"Subjects, Speakers and Roles", Charles J. Fillmore, pp. 31-63. (Also in Synthese 11 (1970), pp. 3-26.)

"The Deep Structure of Indirect Discourse", Gregory Lee, pp. 64-73.

"A Note on Manner Adverbs", Patricia Lee, pp. 74-84.

"Grammatical Variability and the Difference between Native and Non-native Speakers", Ilse Lehiste, pp. 85-94. (To appear in Proceedings of the 2nd International Congress of Applied Linguistics, Cambridge, England (1969).)

"Temporal Organization of Spoken Language", Ilse Lehiste, pp. 95-114. (To appear in Festschrift for Eli Fischer-Jørgensen, Copenhagen, Akademisk Forlag (in press).)

"More on Nez-Perce: On Alternative Analyses", Arnold M. Zwicky, pp. 115-126. (To appear in IJAL.)

"Greek Variables and the Sanskrit ruki Class", Arnold M. Zwicky, pp. 127-136. (Also in Linguistic Inquiry 1.4 (1970), pp. 549-555.)

"Review of W. F. Mulder, Sets and Relations in Phonology: An Axiomatic Approach to the Description of Speech", Arnold M. Zwicky, pp. 137-141. (To appear in Foundations of Language.)

"A Double Regularity in the Acquisition of English Verb Morphology", Arnold M. Zwicky, pp. 142-148. (To appear in Papers in Linguistics.)

"An Annotated Bibliography on the Acquisition of English Verbal Morphology", Mary Louise Edwards, pp. 149-164.

No. 5 (June, 1969)

Twana Phonology, Gaberell Drachman, pp. i-286, Ph. D. dissertation, University of Chicago, 1969. [Limited printing; not sent out to everyone on the mailing list.]

No. 6 (September, 1970) (OSU-CISRC-TR-70-12)

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"Relative Clause Structures and Constraints on Types of Complex Sentences", Sandra Annear Thompson, pp. 20-40.
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"A Speech Production Model for Synthesis-by-rule", Marcel A. A. Tatham, pp. 66-87.
"Translation of A Model of Speech Perception by Humans, by Bondarko, et al.", Ilse Lehiste, pp. 88-132.

Introduction

The two papers contained in this issue of Working Papers in Linguistics deal with syntax. The contribution by Gregory Lee was partly supported by the National Science Foundation under Grant No. GN-534. The paper by Alexander Grosu is published with support from the Graduate School of The Ohio State University. Both treat aspects of the notion of subject. Lee's contribution (also submitted as a Ph.D. dissertation, December 1970) argues that, in English at least, deep subjects are identical with Agents, as treated by Fillmore. Grosu (whose work constitutes his M.A. thesis, December 1970) considers the conditions under which subjects of complement sentences are deletable under identity with noun phrases in higher structures. Please note that the two papers are paginated separately.

On Coreferentiality Constraints and
Equi-NP-Deletion in English

Alexander Grosu

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I wish to express my gratitude to Professor Arnold M. Zwicky, who, as my instructor and thesis supervisor, has read every draft of this paper and made many interesting and helpful suggestions; to Professor D. Terence Langendoen, who called my attention to an intriguing set of data that I take up in the last chapter; to Professor Gaberell Drachman, who provided a great deal of useful criticism and helped give this document its final form; and to Miss Marlene D. Deetz, whose efficiency in typing the manuscript was sincerely appreciated.

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INTRODUCTION

This thesis is concerned with a number of problems that arise in conjunction with the necessary, allowed, or disallowed coreferentiality of a complement sentence subject with some NP in a higher sentence. Such constraints have been variously treated in the literature as conditions on a transformation--generally known under the name of EQUI-NP-DELETION--or as conditions on the well-formedness of underlying (deep) structures. Regardless of this important distinction, such constraints have been stated as governed by verbs--henceforth COSUB verbs--which require that some NP in the same simplex sentence as them be coreferential with the subject of an immediately lower complement sentence, henceforth the deletee. The higher noun phrase--the "controller NP"--has been identified, in all analyses to date of which I am aware, as the subject, direct object, or indirect object of some COSUB verb, thereby making it necessary that COSUB verbs be idiosyncratically marked for a subject--subject, direct object--subject, or indirect object--subject constraint.

The basic claim of this thesis is that these three separate constraints are unnecessary, and that they reduce rather naturally to the subject-subject case, given independently motivated analyses of COSUB verbs, within the theoretical framework which has come to be known as "generative semantics."

The first chapter of this thesis reviews a number of previous proposals on controller NP identity and evaluates the strength of their claims. The second chapter briefly presents the generative semantics assumptions that are pertinent to the ensuing discussion, and considers the validity of some arguments that have been offered in the literature. The third chapter attempts to justify the elimination of idiosyncratic verb-marking--henceforth the Marked Verb Proposal--in favor of a subject-subject constraint applicable to a rather natural verb-class--henceforth the Subject-Subject Proposal. The semantic primes introduced in chapter 3 are defined in the Appendix to that chapter. In chapter four, the interplay of underlying-structure constraints and EQUI is discussed in the light of recent proposals to allow the application of EQUI at more than one point in a derivation and across an arbitrary number of sentence-nodes.

CHAPTER ONE

THE MAIN PROBLEMS DISCUSSED IN PREVIOUS TRANSFORMATIONAL TREATMENTS

Rosenbaum's Identity Erasure Transformation

In his book on complementation in English, Rosenbaum (1967) posited a rule of EQUI-NP-DELETION (in his terminology, the "identity erasure transformation") whose role was to delete the subject of certain complement sentences, when coreferentiality with an NP in a higher sentence and a set of other conditions were satisfied. He was not concerned with how to state formally the fact that coreferentiality is obligatory for certain verbs. This problem was attacked by Lakoff (1965) and Perlmutter (1968) and I shall return to it below.

Rosenbaum's Identity Erasure Transformation, which is claimed to be cyclical and obligatory, is reproduced in full below:

W	(NP)	X	+D	NP	Y	(NP)	Z
1	2	3	4	5	6	7	8

(i) 5 is erased by 2
(ii) 5 is erased by 7

The following conditions (henceforth the erasure principle) govern the application of the identity erasure transformation. An NP_j is erased by an identical NP_i if and only if there is a $S\alpha$ such that

(i) NP_j is dominated by $S\alpha$

(ii) NP_i neither dominates nor is dominated by $S\alpha$
(iii) for all NP_k neither dominating nor dominated by $S\alpha$, the distance between NP_j and NP_k is greater than the distance between NP_j and NP_i where the distance between two nodes is defined in terms of the number of branches in the path connecting them.

The following points are worth noting in connection with this transformation:

(A) The complement sentence whose subject is deleted is introduced by either the FOR-TO or the POSS-ING complementizer (this is the import of the feature +D, which is numbered 4 in the SD of the rule).

(B) The rule is obligatory.

(C) The controller is in the sentence immediately above the deletee.

(D) There is a specific and necessary configurational relation between the controller and the deletee.

(E) Whenever EQUI is applicable, the NP that qualifies as controller is unique.

(F) The rule is cyclical.

The Problems

The rest of this chapter is devoted to a discussion of (A)-(F) above. Each point is expanded as a sub-section bearing the corresponding symbol.

(A) Complementizers allowing EQUI

To the best of my knowledge, the claim that EQUI is only applicable in the presence of either FOR-TO or POSS-ING has not been challenged and I shall assume that its validity is not in question. No more will be said on this issue in the remainder of the thesis.

(B) Obligatoriness of EQUI

The claim that EQUI is always obligatory is slightly too strong. There are clear cases, like (1) and (2), in which EQUI is optional. Such optionality exists, in the speech of the informants I have consulted, with POSS-ING only.

(1) a. My shaving myself annoyed me.

b. Shaving myself annoyed me.

(2) a. John talked to Jill about $\left\{\begin{array}{l}\text{his}\\\text{her}\\\text{their}\end{array}\right\}$ beating up Tom.

b. John talked to Jill about beating up Tom.

Moreover, Postal (1968) points out that EQUI is optional for some nominalizations, e.g.:

(3) a. His_i realization that you knew Greta disturbed Tony_i.

b. The realization that you knew Greta disturbed Tony.

The observation concerning nominalizations is pertinent only within the framework of a grammar that derives nominalizations transformationally.

Another shortcoming in Rosenbaum's treatment is his failure to notice that EQUI is sometimes inapplicable, even though the above structural description is met. Postal (1968) points out a great number of restrictions on the operation of EQUI. For example, EQUI cannot apply backwards when the controller NP is indefinite:

(4) *Finding out Greta was a vampire astonished somebody.

Postal correctly points out that (4) cannot be an instance of violation of underlying structure well-formedness conditions involving coreferentiality relations, for (5), which presumably is derived from the same source as (4), is well-formed:

(5) Somebody was astonished at finding out Greta was a vampire.

However, it does not inevitably follow that (4) illustrates a restriction on EQUI. It could just as well be a restriction on surface structure well-formedness, or on the well-formedness of the output of some late transformation.

(C) The "limited domain" hypothesis

Although Rosenbaum's rule does not in fact claim that the applicability of EQUI is limited to two echelons of embedding, this assumption seems to underlie all the examples given in his book. Notice that it may seem that this assumption, although not explicitly stated, is implicit in the rule, since the erasure principle stipulates that if there is an NP in the immediately higher sentence, that one only is a possible controller. Such reasoning is, however, invalidated by cases in which the immediately higher sentence has only one NP, which in turn contains the complement sentence itself, as in examples (6) and (7).

(6) John thinks that shaving himself would be a mistake.

(7) John thinks that it is improbable that shaving himself would be a mistake.

In (6), there is one intermediate level of embedding between the controller and the deletee, in (7) there are two such. The it in (7) would not prevent John from acting as controller, since it is a N, not a NP. (In fact, in later formulations of EQUI, it would not even be present in the string at the point when EQUI applies, as it would be introduced by EXTRAPOSITION (Kiparsky and Kiparsky, 1968), which would, moreover, be a post-cyclic rule (Ross, 1967b).) As (6) and (7) are permitted by Rosenbaum's rule, it follows that the limited domain hypothesis is not explicit in his formulation, although it seems to be implicit in his practice. The hypothesis is incorrect, as shown by (6), (7) and (8). The latter also provides further support for the claim that EQUI may be optional.

(8) a. George$_i$ explained how it was possible for him$_i$ to defend himself with a pencil.

b. George$_i$ explained how it was possible to defend himself$_i$ with a pencil.

For additional counter-examples to the limited domain hypothesis, see chapter four, section two.

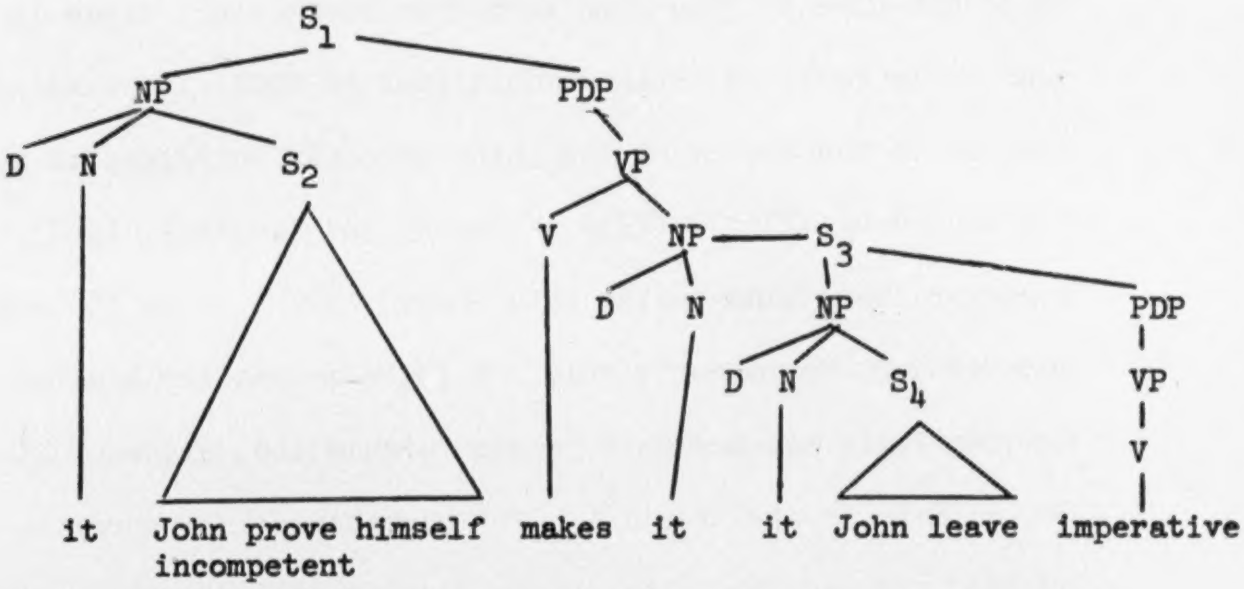
(D) The position of the controller in the structural description of EQUI

The configurational relations holding between the erasing and erased NPs are defined by Rosenbaum's erasure principle. Laying aside for the moment certain problems that will be discussed in connection with point (6), Rosenbaum's principle would seem to work fairly well. Consider now the following sentence:

(9) That John has proven himself incompetent makes it imperative for him to leave.

whose underlying structure is, schematically, (9'):

(9')



On the penultimate cycle, FOR-TO is assigned to S_4, and on the last cycle, THAT is assigned to S_2. After this, the leftmost occurrence of John can delete the rightmost one, as the conditions for the application of EQUI, as stipulated by Rosenbaum, are satisfied. But this will result in (10), which is not a paraphrase of (9):

(10) That John has proven himself incompetent makes it imperative to leave.

Therefore (10) cannot have arisen by application of EQUI to some stage in the derivation of (9). Notice also that EQUI could not have been blocked by the presence of it, which is an N, not an NP.

It appears that the position of the controller is not defined narrowly enough, and I think that Langacker (1966) succeeded in eliminating the undesirable application of EQUI to (9'). Langacker stipulates that the controller NP must command the deletee, but the latter must not command the former. This automatically rules out (9') as a possible source for (10), for neither occurrence of John commands the other. Langacker also notes that the command-notion alone is not strong enough to limit the scope of EQUI. Indeed, it would allow the derivation of (11) b from (11) a, although the two are not paraphrases.

(11) a. John knows that Jill wants him to leave.

b. John knows that Jill wants to leave.

Some principle must be found, therefore, to prevent John from deleting the identical subject of the complement sentence, which it commands without being commanded by it. Langacker offers two possible candidates, the principle of control and the principle of limited domain. The notion of control is defined as follows: given three nodes A, B, C; B controls C from A if (a) A commands B, (b) both A and B command C, (c) B does not command A, and (d) C does not command either A or B. The principle of control says that the controller must control the deletee. This can explain why the first occurrence of John cannot delete a coreferential subject of the complement sentence: it is prevented from doing that by Jill, which controls the complement subject, and screens the latter from the influence of the leftmost John. The principle of limited domain says that a rule whose domain is limited in this particular way can only apply to a string involving two echelons of embedding. It is, in fact, no more than (C) of page 4. As the leftmost John involves a third echelon of embedding, it cannot act as controller, and the principle of limited domain accomplishes the same thing as the principle of control in this case.

It looks like the principle of control and not that of limited domain should be used in the formulation of EQUI, because of sentences like (12):

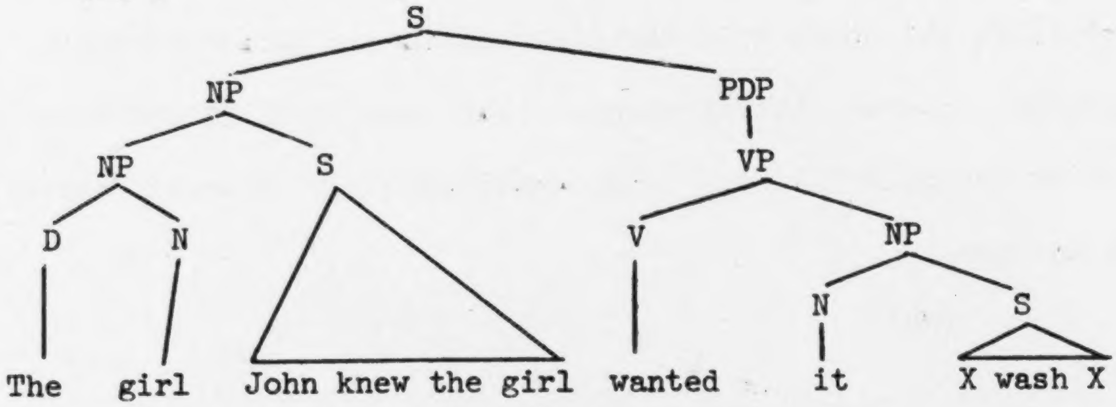
(12) John said that Jill knew that it would be hard to criticize $\left\{\begin{matrix}\text{*himself}\\ \text{herself}\end{matrix}\right\}$.

Both principles can explain why *John* does not qualify as controller, but the principle of limited domain fails to explain why *Jill* does, as it is two levels of embedding above the deletee.

It should be pointed out that what Langacker accomplishes by the principle of control, Rosenbaum accomplishes by condition (iii) of his minimal distance principle. Indeed, in (12), *John* does not qualify as controller for there is an NP_k, *Jill*, that is closer to the complement subject than *John*. Also, despite Rosenbaum's failure to use a notion equivalent to "command", that is, despite his failure to specify that the S node which most immediately dominates the controller must also dominate the erased NP, condition (iii) of his minimal distance principle will in general ensure that the controller commands the erased NP. In (9'), according to his formulation, the leftmost *John* qualified as controller because *it* was not an NP. However, if this instance of John had been in a relative clause, it could not have acted as controller. Consider (13), with the underlying structure (13'):

(13) The girl who John knew wanted to wash $\left\{\begin{matrix}\text{herself}\\ \text{*himself}\end{matrix}\right\}$.

(13')



Here, if *X* is coreferential with *John*, EQUI cannot apply, as *the girl* is closer to *X* than *John* is. EQUI can only apply if *X* is coreferential with *the girl*.[1]

Excursus on Rosenbaum's Minimal Distance Principle

In section (E), I shall show that the assumption that the controller is always unique is untenable. Let us, however, pretend, in this excursus, that it can be defended, and take a look at some conclusions that Rosenbaum arrives at by incorporating it into his description of the English complement construction.

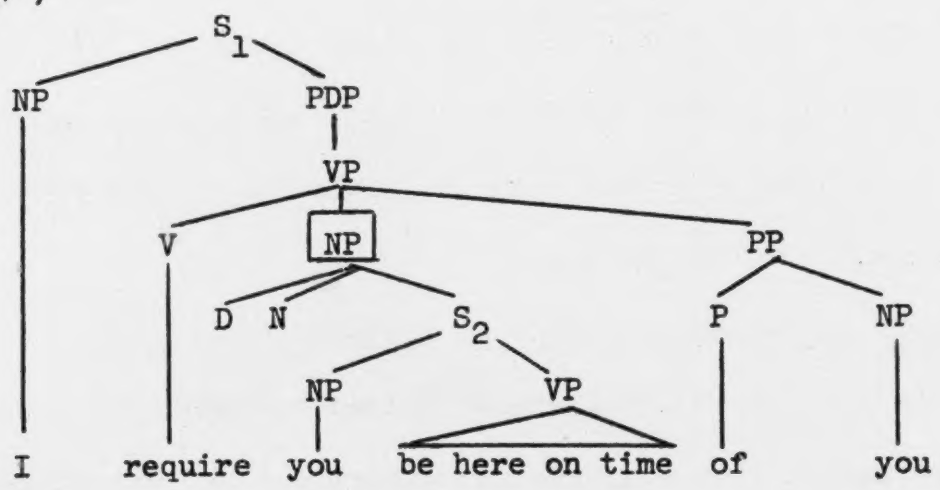
One of Rosenbaum's most important claims is that complementation is of two types: NP- and VP-complementation. He maintains that (14) is an instance of NP-complementation, while (15) is an instance of VP-complementation.

(14) I require of you to be here on time.

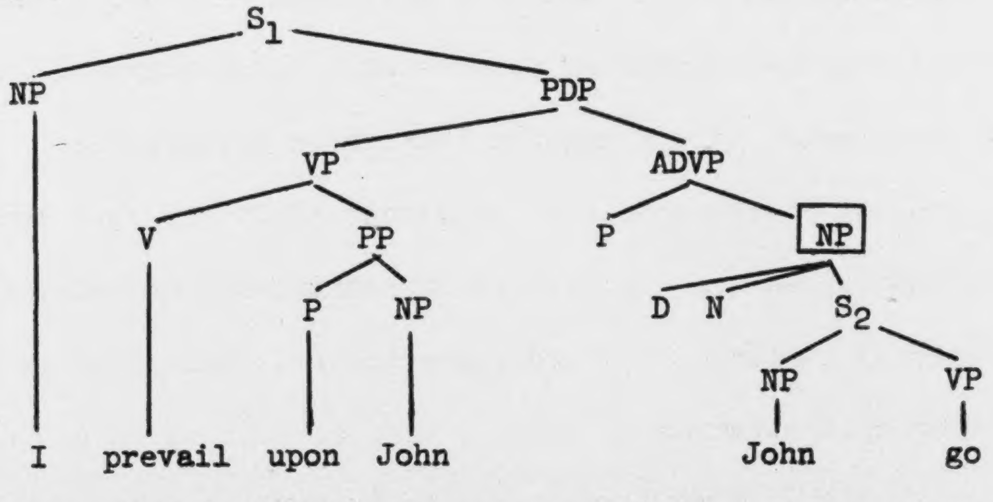
(15) I prevailed upon John to go.

He argues that the minimal distance principle "applies with such remarkable precision to so many cases" that apparent counterexamples may be assumed to be false ones. Then he claims that the principle breaks down if an NP-complementation analysis is given for (15), but holds if VP-complementation is chosen instead. Observe, however, the structures (14') and (15'), which Rosenbaum claims underlie (14) and (15) respectively, if NP-complementation is assumed:

(14')

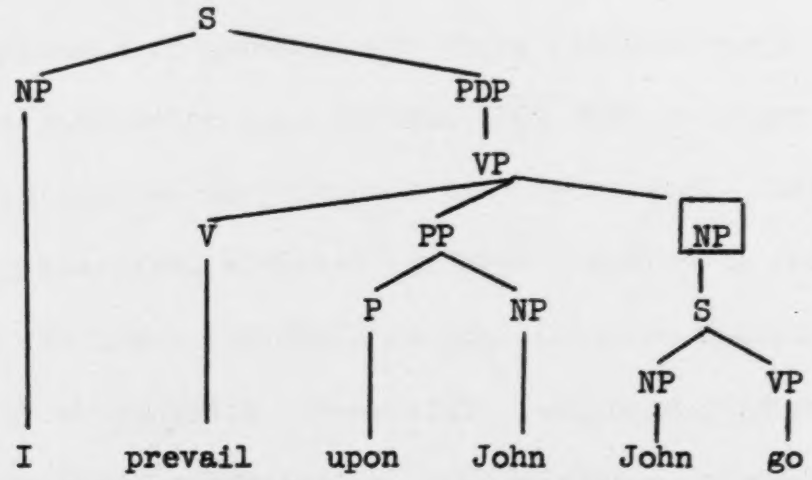

S1
NP
PDP
VP
V
NP
PP
D
N
S2
P
NP
NP
VP
I
require
you
be here on time
of
you

(15')


S1
NP
PDP
VP
ADVP
V
PP
P
NP
P
NP
D
N
S2
NP
VP
I
prevail
upon
John
John
go

The boxed NP which dominates the complement sentence is within the main VP in (14') but outside it in (15'). Rosenbaum gives no explanation for this difference, but it and nothing else causes the minimal distance principle to break down. It is easy to see that if the complement sentence is brought within the domain of the main VP the principle holds in both (14') and (15'); this is true even if the NP that dominates S_2 is in turn dominated by a PP node. The solution proposed by Rosenbaum is (15").

(15")



Notice that it not only eliminates the boxed NP above S_2, but it also puts S_2 within the domain of VP. Had he merely removed the NP, the principle would not have failed to work like in (15').

The authors of Integration of Transformational Theories on English Syntax (henceforth: ITTES) consider two alternatives to Rosenbaum's formulation, neither of which constitutes a genuine alternative. First, they consider the possibility of allowing EQUI to apply after the rules of subjectivalization and objectivalization (the framework they assume is Fillmore's case grammar, in which subjects and objects are not represented in the deep structure). They claim that if the minimal distance principle applies at that stage, it will work correctly and "in a very natural way" in cases like (14) and (15), without requiring the addition of VP-complementation to the grammar. However, their solution proves nothing about the naturalness of case grammar, since what they did was place the complement sentence within the main VP, thereby eliminating Rosenbaum's inconsistency. As I stressed above, Rosenbaum's framework works no less naturally in this particular case if his inconsistency is removed. The authors of ITTES reject this solution however, since the ordering of transformations they propose requires that EQUI precede subjectivalization and objectivalization. They propose to identify the controller NP by its case label as follows: when the sentence immediately higher than the complement contains both an AGENT and a DATIVE, the latter qualifies as controller. This second alternative is in fact equivalent to Rosenbaum's principle, for, unless the topmost sentence is passivized, the DATIVE always ends up as object and is therefore "closer" to the complement subject than the AGENT, which ends up as subject. Passivization of the topmost sentence does not affect the controller status of the DATIVE, since (15) is a paraphrase of (16):

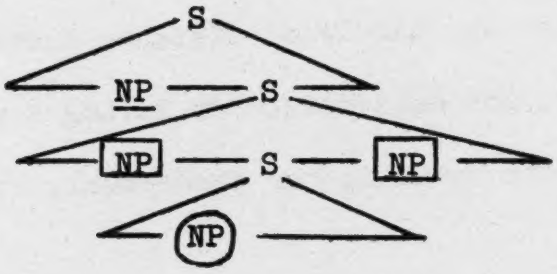
(16) John was prevailed upon by me to go.

In Rosenbaum's framework, passivization is irrelevant to the issue, for EQUI applies before passivization. But in ITTES' framework, it becomes relevant, for passives are not derived from actives, and structures roughly like (14') and (15') are not available at any point in the derivation of a passive. If the minimal distance principle is allowed to work after passivization, it will make false predictions. Therefore, not only considerations of rule ordering, but also the unavailability of an active-like structure in the derivation of passive sentences forces ITTES' authors to choose the second alternative rather than the first. A corollary of this conclusion is that if the first alternative is chosen, the case grammar framework will turn out to be less, rather than more, natural than the one assumed by Rosenbaum, as the minimal distance principle will only work for active sentences. To sum up: if passives are derived from actives, a statement in terms of case nodes is equivalent to the minimal distance principle. If passives are not derived from actives, only a statement in terms of cases is possible. It should be clear, however, that Rosenbaum's and ITTES' solutions are equivalent in predictive power, given the *Aspects* and Case Grammar frameworks respectively.

(E) The Controller-Uniqueness Problem

We have seen that the notion "commands" in conjunction with the principle of control disqualifies a large number of NPs from acting as controllers. However, this does not yet ensure uniqueness of controller, for there may be several NPs which control--in Langacker's sense--the deletee. Consider the following hypothetical structure:

(17)



The underscored NP is prevented from erasing the circled NP by the principle of control. However, the principle of control allows both boxed NPs to act as controllers. Rosenbaum obviously assumed that only one of these possible candidates should be allowed to act as controller in each and every case, and hoped that the minimal distance principle would correctly identify the controller. Postal (1968) has shown quite convincingly that the uniqueness assumption is incorrect in general, and that constraints independent of EQUI (which I assume to be equivalent to Perlmutter's (1968) constraints on the well-formedness of deep-structures) operate in the subset of cases where uniqueness is required.

Rosenbaum's minimal distance principle must be rejected for at least three reasons: First, it is not quite clear why there should be such a principle. Indeed, as Rosenbaum defines it, the minimal distance principle is not semantic, for it does not operate on underlying structures. Neither is it a perceptual strategy--in the sense of Bever (1970)--for two reasons: (a) the input to a perceptual strategy must be a surface string, not an intermediate stage in a derivation, and (b) a perceptual strategy can conceivably make use of linear distance, but hardly of distance measured in terms of tree branches. If the motivation for having a minimal distance principle is neither semantic nor perceptual, it is hard to see what it could be.

Secondly, as pointed out by Postal, the minimal distance principle is not required in a great number of cases, and Langacker's principle of control would be there sufficient (Postal apparently believes that something like the principle of limited domain is strong enough, as he refers to the sentence "immediately higher" than the complement). As an example, consider (18):

(18) Harry talked to Bill about kissing Bertha.

Postal notes that the deleted subject of _kissing_ can be ambiguously understood as either _Harry_, or _Bill_, or both. In addition, it seems to me that the deleted subject can also be understood as a generic, and I have found this interpretation to be possible in all the cases of ambiguous deletion I have been able to think of.

A third argument against the minimal distance principle or the DATIVE-as-controller proposal (see page 14) is that either fails in at least two types of cases. Consider the following contrasts:

(19) a. I asked John to eat.
b. I asked John when to eat.

(20) a. I asked John to go.
b. I promised John to go.

The two above mentioned proposals work in the sentences marked _a_, but not in those marked _b_. _ITTES_ briefly takes up (20 b.), and attempts to dismiss it as a marginal case, a hybrid of the well-formed sentences _I promised to go_ and _I promised John that I should go_. Even if their solution constitutes a satisfactory explanation (which I have doubts about), the minimal pair formed by (19) a and b must still go unexplained.

Postal proposes that ambiguous deletion be allowed within the limits of the principle of limited domain (he does not actually use this phrase), and that uniqueness of controller be ensured, where required, by a number of *modal constraints*. Specifically, he proposes that sentences containing infinitivals of a certain kind[2] be derived from structures in which the complement sentence contains a modal. These modals would constitute the cause of controller uniqueness. He cites three separate modal constraints which he labels the *Ought-*, *Will-Would-*, and *Would of intention-* modal constraints. He argues as follows: in the following pairs, the b sentences should be viewed as transformationally derived from the structures underlying the a sentences:

(21) a. Harry told Max$_i$ that he$_i$ $\left\{\begin{array}{l}\text{should}\\ \text{ought to}\end{array}\right\}$ enlist in the army.

b. Harry told Max to enlist in the army.

(22) a. George asked Bill$_i$ if he$_i$ would help Mary.

b. George asked Bill to help Mary.

(23) a. Harry$_i$ promised Bill that he$_i$ would visit Greta.

b. Harry promised Bill to visit Greta.

He gives two reasons for believing that the a and b sentences are derived from a common source--for any given pair: (a) they are paraphrases, and (b) neither the verbal element following the modal, nor the infinitival can be statives. As an illustration of (b), consider pairs like:

(24) a. *I told Harry that he should intend to go.

b. *I told Harry to intend to go.

(25) a. *I told Harry that he ought to be popular in France.

b. *I told Harry to be popular in France.

To these two arguments advanced by Postal, I should like to add a third, namely: (c) both the a and the b sentence types are rather bad with "emotive" adverbials.[3] By way of example, consider:

(26) a. *I told Harry that he should go $\left\{\begin{array}{l}\text{reluctantly}\\ \text{oddly}\\ \text{stupidly}\\ \text{regretfully}\\ \text{intentionally}\\ \quad\text{etc.}\end{array}\right\}$

b. *I told Harry to go $\left\{\begin{array}{l}\text{reluctantly}\\ \text{oddly}\\ \text{stupidly}\\ \text{regretfully}\\ \text{intentionally}\\ \quad\text{etc.}\end{array}\right\}$

Two more arguments can be adduced here:[4] (d) the sentence *they were misunderstood* is ambiguous, as it can have "a stative or durative reading, as well as a reading on which a single act or incident of misunderstanding is meant." However, in a and b, only the latter reading is possible, e.g.

(27) a. I told them that they ought to be misunderstood.

b. I told them to be misunderstood.

(e) in both a and b, if *misunderstood* has an agentive *by*-phrase, the latter must be a "plural or collective noun phrase; it cannot be a singular or a conjunction of singulars" (but see chapter 3, p. 59.

(28) a. I told them that they should be misunderstood

$\left\{\begin{array}{l}\text{by their friends}\\ \text{by the public at large}\\ \text{*by Bill}\\ \text{*by Frank, Pete and Mike}\end{array}\right\}$.

(28) b. I told them to be misunderstood

by their friends
by the public at large
*by Bill
*by Frank, Pete and Mike

.

It is important to understand that arguments (b) - (e) above do not offer final proof that sentences a and b in examples (21)-(28) are derived from common sources, and that instances of constraints that fail to be shared would be particularly damaging to the common-source hypothesis. If such counterexamples can be found, it will mean that the sources of sentences a and b share certain properties, but are not identical.

Observe now that certain problems arise in connection with argument (a). First, a substantial number of native speakers that I have consulted feel that (22) a and b are not paraphrases, a being more euphemistic than b. Secondly, the modals in (21) a are ambiguous, as they can express either moral obligation or desirability, or a command. This ambiguity is made possible by the fact that the verb tell itself is ambiguous between an informative or declarative reading and one of command. Therefore, (21) a can be construed either as an order given to Max, or as a statement of Harry's informing Max that he has a duty to enlist in the army. But (21) b is unambiguous, as it has only the command reading, and it is necessary to posit two underlying representations for (21) a and require that only the command reading be considered a possible transformational cognate of (21) b.

In addition to these semantic considerations, there are syntactic facts that suggest that there should be two separate sources for the readings of (21) a. Postal himself furnishes one argument, noting that, for certain speakers, he can be understood as a coreferent of either Harry or Max, and that this ambiguity is possible only when the modal has a "moral" interpretation rather than an "imperative" one.

Secondly, a command can only be aimed at a moment in time later than that at which it is spoken, while a moral duty can hold at the moment of its utterance, and we expect this distinction to have syntactic consequences. Deviant sentences based on tense restrictions are hard to construct, for the present continuous--the only "real present"--can also refer to a future time. Thus, (29) is grammatical,

(29) Be working!

for it may be continued as

(30) Be working when I return from work!

It is therefore necessary to appeal to time adverbs in order to bring out the moral/imperative distinction, and this is done in (31):

(31) a. I am telling you that you ought to be working at this very moment.

b. *I am telling you to be working at this very moment.

c. *Be working at this very moment!

Thirdly, non-emotive adverbials are acceptable with moral modals, but not with imperative ones:

(32) a. I told John that he should $\left\{\begin{array}{l}\text{probably}\\ \text{conceivably}\\ \text{undoubtedly}\end{array}\right\}$ go.

b. *I told John to $\left\{\begin{array}{l}\text{probably}\\ \text{conceivably}\\ \text{undoubtedly}\end{array}\right\}$ go.

It might be thought that (32) b is bad because an adverb intervenes between to and the verb. But this suspicion vanishes when we consider the behavior of please:

(33) a. *John should please go.

b. I told John to please go

c. John, please go!

Fourthly, the complement sentence can passivize with both kinds of modals, but the underlying structures would not be the same. This can be seen rather clearly in (34):

(34) a. I told Jill that she ought to be spanked for what she did to her husband.

b. I told Jill to be spanked for what she did to her husband.

Perlmutter, in his dissertation, argues rather convincingly that passive imperatives ought to be embedded in a sentence whose subject is coreferential with the surface passive subject, whose verb is get or let, and which gets deleted by a later transformation. His arguments are both semantic and syntactic. Semantically, notice that (35) b is a paraphrase of (34) b, but (35) a is not a paraphrase of (34) a:

(35) a. I told Jill that she ought to $\left\{\begin{array}{l}\text{get}\\ \text{let}\end{array}\right\}$ (someone) to spank her for what she did to her husband.

(35) b. I told Jill to $\left\{\begin{array}{l}\text{get}\\ \text{let}\end{array}\right.$ (someone) to$\Big\}$ spank her for what she did to her husband.

Syntactically, it is not possible to use all Perlmutter's arguments, for some constraints on structures with *let* or *get* are also shared by moral modals. However, it is possible to use some. Firstly, sentences with *be rumored* cannot be embedded to sentences with *let* or *get*. Therefore, (36) is ungrammatical because (37) is ungrammatical.

(36) *Be rumored to enjoy surfing.

(37)*$\left\{\begin{array}{l}\text{Get}\\ \text{Let}\end{array}\right\}$ yourself to be rumored to enjoy surfing.

The fact that (38) a, but not (38) b, is grammatical, suggests that the latter, but not the former, has *be rumored* embedded to *let* or *get*.

(38) a. I told Greta that she ought to be rumored to be a freak (considering that she had destroyed so many people's reputations).

b. *I told Greta to be rumored to be a freak.

Secondly, sentences like (39) are ambiguous between a reading which refers to a single incident and a durative or stative reading.

(39) Greta will be misunderstood.

However, if (39) is embedded to a sentence with *let* or *get*, only the former reading is possible, as seen in (40):

(40) Greta will get herself (to be) misunderstood.

If moral modals do not contain a *let* or *get*, we would expect the complement sentence in (41) a to remain ambiguous, and this prediction is indeed confirmed:

(41) a. I told Greta that she ought to be misunderstood

$$\left\{\begin{array}{l}\text{at the evening party}\\ \text{for the rest of her life}\end{array}\right\}$$

b. I told Greta to be misunderstood

$$\left\{\begin{array}{l}\text{at the evening party}\\ \text{*for the rest of her life}\end{array}\right\}$$

We have examined a substantial body of evidence which leads to the conclusion that moral and imperative modals are syntactically distinct. The problem to be considered next is whether embedded infinitivals with imperative force should be derived from structures containing imperative modals.[5]

Observe that Postal postulates three separate modal constraints for handling what is felt to be a single phenomenon, the embedded imperative. This is not in itself objectionable, except that underlying modals are chosen on the basis of those that happen to appear on the surface. I say "happen," because verbs like *beg*, *beseech*, *implore*, disallow surface modals, and Postal is forced to require an obligatory rule of infinitivalization for these verbs. Notice that the choice of one modal constraint over another becomes rather ad-hoc in this case.

Next, verbs that take different surface modals do not exhibit an underlying semantic distinction parallel to that obtaining between the modals. Consider the pair:

(42) a. I told John to leave.

b. I asked John to leave.

According to Postal, tell requires the Ought constraint, while ask requires the Will-Would constraint. But the distinction between (42) a and b is, at least partly, presuppositional, in that the former but not the latter presupposes that the subject enjoys a position of authority over the object. Violation of this presupposition leads to such oddities as (43):

(43) a. ?The accused told the court to be lenient.
b. The accused asked the court to be lenient.

In addition to this, there probably is a difference between the meanings of tell and ask, as the former describes a command and the latter a request, and there appears to be a difference of degree between the two notions. Notice that the presupposition mentioned above need not be specified for tell, it is probably a feature of all command-verbs. Be this as it may, neither the difference in degree, nor the presupposition are explained by the presence of ought rather than would (but see also chapter 3, p. 78).

Another difficulty with sentences containing modals is that they do not always constitute perfect paraphrases of corresponding sentences containing infinitivals, at least for some speakers (e.g., (22)).

Furthermore, the will-would modal constraint seems to be required for ask and no other verb. This makes the constraint look suspicious, but does not necessarily indicate that it is wrong, for it is possible that ask have some idiosyncratic properties.

Postal attempts to unify the phenomena that he presents as modal constraints by pointing out that all the sentences where the constraints appear to work contain higher verbs of linguistic communication describing a non-declarative performance. Declarative verbs are exempted from such constraints, and the controller NP may be ambiguous within the limits allowed by the principle of limited domain. Verbs like tell are ambiguous between a declarative and a non-declarative reading, and their being subject to the constraints is a function of their reading in particular sentences. The same ambiguity is exhibited by the so-called "verbs of manner of speech", like scream, shout, moan, whisper, etc.

It should be made clear that Postal's modal constraints on non-declarative characterization of some verbs of linguistic communication only attempt to delineate the class of verbs that require controller uniqueness, but are powerless to predict which particular NP will be chosen as controller in specific cases. They furnish no principle by which we can predict that the controller is the subject of a verb like promise but the object of a verb like tell.

Postal proposes to handle controller-unique cases by positing idiosyncratic deep structure constraints for verbs referring to non-declarative performances. Earlier, I called this the Marked Verb Proposal. This proposal would require that the subjects of certain verbs and the objects of others be coreferential with the subject of the complement sentence in deep structure.[6] Therefore, "...the fact that the linguistic verb ask of request requires EQUI to delete an NP which is a coreferent of its indirect object is a function of the deeper fact that this verb requires its complement subject to be a coreferent of its indirect object...".

Notice that the kinds of deep structure constraints to which Postal refers are not limited to non-declarative linguistic verbs. In a trivial sense, they apply to verbs like write, cable, phone. In a more interesting sense, they apply to verbs like persuade and force which cannot be said to embed an imperative, and can therefore have nothing to do with modal constraints. There might be a semantic feature that non-declarative verbs of communication (oral or otherwise) and verbs like persuade and force share, but this feature is not easy to define.

As a first approximation, we may try "future-orientation", in the sense that the time of the complement is later than that of the COSUB verb. For example, in I order you to leave, the leaving can only take place after the order has been given. However, there are verbs which exhibit this future-oriented feature, but do not require coreferentiality, e.g., want, predict, forecast. We notice however that the latter three verbs can embed either statives or non-statives, while COSUB verbs embed non-statives only. Therefore, we may try to characterize the COSUB verbs with two features, i.e., +FUTURE ORIENTED and -STATIVE EMBEDDING, or in more informal language, "oriented towards future actions alone". The one embarrassing case that I am aware of is try, which does exhibit the coreferentiality constraint but embeds some statives in addition to non-statives. In the Appendix, p. 86, I suggest a possible way of getting around this fact.

Recently (April 1970), Karttunen proposed an interesting classification of English predicate complement constructions, which comprised four basic classes: Factives, Implicatives, If-Verbs, and Only-if-Verbs. These four classes can be roughly defined as follows:

(a) Both the assertion and denial of a Factive commit the speaker to the belief that the complement is true.

(b) The assertion of an Implicative commits the speaker to the belief that the complement is true, while the denial of the implicative commits the speaker to the belief that the complement is false.

(c) The assertion of an If-Verb commits the speaker to the belief that the complement is true.

(d) The denial of an Only-if-Verb commits the speaker to the belief that the complement is false.

There is no reason to believe that the COSUB verbs coincide with any Karttunenian subclass or any group thereof. Rather, if the COSUBs constitute a natural semantic class, this class seems to cut across Karttunen's taxonomy.

The semantic characterization of COSUB verbs I offered above is extremely tentative; however, in testing its empirical validity, it will be necessary to distinguish between genuine counterexamples and apparent ones resulting from homophony. For instance, the two instances of *tell* in (44) and (45) are really instances of different but homophonous verbs, the former only being a COSUB verb.

(44) I told him to get out.

(45) I told him that the weather is fine.

In general, COSUB verbs do not take the THAT complementizer, but I do not think that this should be generalized, in view of verbs like *confess*, which are COSUBs even with THAT. This can be seen in the following paradigm:

(46) I confess that I killed John.

(47) *I confess that Mary killed John.

In connection with the minimal pair exhibited by (19), Postal adopts a suggestion of McCawley's to the effect that (19) b is underlain by (48):

(48) I_i asked $John_j$ to tell me_i (the answer to the question) when I_i should eat.

in which case (19) b reduces to the already known constraints on *tell*. The only difficulty is that telling someone the answer to a question looks like a declarative performance, and declarative *tell* carries no constraints. This difficulty is probably more apparent than real, and I attempt to provide an explanation in chapter three.

(F) *The cyclicity of EQUI*

Postal notes that Lakoff (1968) gave some rather convincing evidence in support of the proposition that EQUI is cyclical. Lakoff's argument runs briefly as follows: the rules of SUBJECT-RAISING and PASSIVE are cyclical. If EQUI can be shown to have to occur before some occurrences of SUBJECT-RAISING and PASSIVE and after some others, this will prove that EQUI is cyclical. Now consider (49), with an underlying structure roughly like (49'):

(49) Harry was believed by everyone to have wanted to seduce Lucille.

(49') [Everyone believed [Harry$_1$ wanted [Harry$_2$ seduce Lucille]]]

It is clear that Harry$_1$ was raised and then moved to the left by passivization. It must also delete Harry$_2$; if EQUI applies after raising and passivization, its structural description must be considerably complicated to be allowed to reach across *everyone*. But if EQUI applies first, no modifications are necessary. Therefore, EQUI must precede certain applications of RAISING and PASSIVE. Consider now (50) and its underlying structure (50'):

(50) Joe wanted to be seen by Mary kissing Betty.

(50') [Joe$_1$ wanted [Mary see [Joe$_2$ kiss Betty]]]

In this case, if EQUI applies first, Joe$_1$ must erase Joe$_2$ across *Mary*, and the structural description of the rule becomes more complex. But if RAISING and PASSIVE apply first, Joe$_2$ is brought in a position where its deletion becomes straightforward. Therefore, EQUI must follow certain applications of RAISING and PASSIVE. Since EQUI must follow certain instances of RAISING and PASSIVE--which are cyclical rules--it follows that EQUI can be neither a precyclical or a postcyclical rule, and can only be cyclical. But the ordering indicated above is not only dictated by criteria of simplicity, it is the only actual possibility. The reason for this is that EQUI may have to apply more than once in a structure, and it is theoretically possible to construct structures in which an arbitrary number of applications ofEQUI is required. As there is no natural limit to the number of times EQUI may apply, if EQUI is not cyclical, its structural description becomes unstatable. By way of example, consider (51), where the sequence EQUI-RAISING-PASSIVE must apply on two cycles.

(51) Joe was thought by everyone to want to be seen
by Mary trying to kiss Lucille.

(51') [Everyone thought [Joe$_1$ wanted [Mary see [Joe$_2$ try
[Joe$_3$ kiss Lucille]]]]]

Joe$_2$ deletes Joe$_3$, then it is raised and passivized, after which it is in turn deleted by Joe$_1$, which is subsequently raised and passivized.

Despite this impressive piece of evidence, Postal presents a large body of equally impressive evidence which points to the conclusion that EQUI cannot be cyclical. First, he shows that PRONOMINALIZATION must follow some last-cyclical or post-cyclical rules and must therefore be itself post-cyclical. Then, he lists a considerable number of rather peculiar constraints that hold for both PRONOMINALIZATION and EQUI, and concludes that an important generalization would be missed if a large number of constraints were repeated twice in the grammar. As it would not be possible to constrain EQUI after it has applied, the conclusion that NPs that are eventually deleted must be first pronominalized in order to participate in the constraints seems rather inevitable. How can we then reconcile these two conflicting kinds of evidence, that is, how can EQUI be cyclical and non-cyclical at the same time? Postal proposes to break down EQUI into two parts; a cyclical rule called DOOM MARKING will mark the NPs that will eventually be deleted, then another rule called DOOM ERASURE will delete only those NPs that are both "doomed" and pronominal.

Of course, a host of problems remain to be solved. The precise statement of DOOM MARKING and DOOM ERASURE is no simple matter, and it is not even clear that there should be only one rule of DOOM MARKING. Moreover, the status of PRONOMINALIZATION itself is not clearly established in the grammar. Ross (1967) claimed that it was a cyclical rule, while Lakoff proposed that it be partly stated as output conditions. Postal's treatment of EQUI requires that Pronominalization be a post-cyclical (or last cyclical) rule. There is of course no a priori justification for believing that all pronominal forms arise through the operation of a single rule or set of conditions. Be this as it may, Postal's evidence suggests rather strongly that the deletion of complement subjects cannot be handled by one rule, and that at least two are required.

Returning now to point (E) above, we recall Postal's Marked Verb Proposal, according to which promise would be marked for subject-subject coreferentiality, persuade for direct object-subject coreferentiality, tell for indirect object-subject coreferentiality, and ask for an of-phrase-subject coreferentiality. There are no a priori grounds for considering this proposal wrong. However, there are some reasons for suspecting that the above items are not totally unrelated, as a semantic notion like "intention" seems to be involved in all of them. In a somewhat vague sense, a promise is a statement of intent, an act of persuasion causes intent in another person, an act of telling or asking is an attempt to bring about some intention in another person. If syntactic justifications can be found for representing the above verbs with a shared element, we may hope that the four separate constraints will reduce to only one constraint that could be imposed on that element.

In chapter two, I discuss the pertinent features of a theory of language which makes such an endeavor possible. In chapter three, I inquire into the possibility of formulating a solution along the lines suggested above.

Footnotes

[1] I assume Robin Lakoff's (1968) phrase structure rules for the expansion of relatives and complements respectively:

NP ---→ NP (S)
NP ---→ N S

[2] Postal does not define the kind of infinitivals that he has in mind, but I assume that he means "subjectless infinitival clauses that originate as objects of the immediately higher verb."

[3] I am using "emotive" in the sense of Kiparsky and Kiparsky (1968).

[4] I am indebted to Perlmutter (1968) for those, although he uses them in a different context.

[5] The problem of whether there should be a modal in imperatives in general and what that modal should be is a vexed one in the literature. Klima (1964) argued for a will, on the basis of tags like won't you? that can follow imperatives. Bolinger (1967) pointed out that other tags were possible too. Lees (1964) argued for a phonologically zero morpheme IMP, which ITTES collapsed with SJC (subjunctive) that is necessary in embedded clauses. The latter required a SJC morpheme to ensure the operation of certain rules, and in order to supply the correct semantic interpretation. With respect to the semantic interpretation, the status of SJC seems to me very similar to that of Q that had been proposed by Katz and Postal (1964) for questions. However, if embedded questions and commands are embedded to a higher verb of questioning or command, and if unembedded sentences of this kind are viewed as embedded to abstract performatives with the same properties, the need for a Q or IMP morpheme in the underlying structure of the embedded clause vanishes. Should such a morpheme turn out to be indispensable for the operation of transformational rules, we might resort to the undesirable solution of introducing it transformationally and subsequently deleting it. It might be argued that a SJC would still be necessary for verbs like say that are ambiguous with respect to imperative force, and in a theory like that outlined by Katz and Postal, this would indeed be required. If we adopt, however, the suggestion made by Weinreich (1966), McCawley (1967) and others, that underlying structures should contain unambiguous terminal elements (lexemes or semantic primes), an SJC in the embedded clause becomes redundant.

[6] The notion of "deep-structure constraint" is extensively discussed in Perlmutter (1968). He argues that obligatory coreference of NPs of the type discussed above cannot be handled transformationally--as Lakoff (1965) had contended--for the coreference relation is not always the same at the stage at which EQUI applies. It appears to be the same, however, at a deeper level, and Perlmutter assumes there is no need to state it at a stage later than the deep structure. One of the most convincing pieces of evidence comes from Bulgarian, where coreference relations must be satisfied but EQUI is precluded; therefore, there is no way to state the restrictions transformationally, unless one is willing to introduce "null transformations."

CHAPTER TWO

PRE-LEXICAL TRANSFORMATIONS AND SEMANTIC PRIMES

Some Objections to the Standard Theory

A number of fundamental assumptions of the Standard Theory of transformational grammar--as it emerges from Katz and Postal (1964) and Chomsky (1965)--have been questioned in recent years by Bach, Gruber, Lakoff, McCawley, Postal himself, and others, who proposed a new approach to linguistic theory that has come to be known as Generative Semantics. Among the Standard Theory tenets with which the Generative Semanticists took issue was the claim that there exists a significant level of deep structure lying at the boundary between semantics and syntax and at which significant generalizations needed to be stated. The Generative Semanticists' criticism contends that the deep structure of the Standard Theory resembles the phonemic level of American structuralism in that both complicate the description unnecessarily and, if their definition is taken literally, they make incorrect claims.

Deep structure was defined by the following properties:

(A) Lexical insertion takes place at this level.

(B) Deep structures serve as input to both the transformational and the semantic components.

(C) Selectional and co-occurrence restrictions are statable at this level.

(D) Fundamental grammatical relations, like subject and object are definable at this level.

(A) is simply incorrect as it stands. McCawley (1967) points out that items like former and latter, which depend on the order of items in surface structure cannot possibly be inserted in deep structure. He also cites an example given to him by Ross, which shows that personal pronouns cannot all be inserted at the same point, due to an English rule which obligatorily collapses two conjoined superficially identical NPs:

(1) a. Do you know John and Mary? He and she are a doctor and a teacher respectively.

b. Do you know John and Bill? $\left\{\begin{array}{l}\text{*He and he}\\ \text{They}\end{array}\right\}$ are a doctor and a teacher respectively.

Cases like the above, as well as phenomena like suppletion and inflection, require that the Standard Theory be supplemented with a second lexical look-up, if it is to meet standards of observational adequacy. However, if nothing else is done, higher levels of adequacy will not be reached.

Lakoff (1969) and Postal (1970) argue at great length that important generalizations would be missed if all lexical items were regarded as non-complex and unstructured. Lakoff shows that dissuade is subject to the same derivational constraints as persuade not, and that the facts do not need to be stated twice if the former is allowed to be inserted in place of the latter. Postal shows that a considerable number of restrictions which must be stated for the verb remind follow rather naturally from restrictions that are independently needed for the predicates strike and like. It appears that certain generalizations can only be captured if we allow items to replace other items.

There is one difficulty here, as the replaced and the replacing items cannot be of the same formal nature. Indeed, lexical items often have idiosyncratic properties, and if both the replacing and the replaced items are viewed as lexical, the theory will sometimes make wrong predictions. This difficulty has been repeatedly pointed out by the supporters of the "lexicalist position." For example, Chomsky (1967) shows that verbs and derived nominals often exhibit different semantic and syntactic properties, and that the existence of a verb does not automatically imply the existence of a nominal and vice versa. However, this difficulty vanishes if the replaced items are abstract constructs with no phonological form and exhibiting some of the semantic and syntactic properties of the corresponding lexical items. This new kind of construct is called "the semantic prime." Therefore, in positing the surface verb remind as derived from the semantic primes strike and like, the linguist must be careful not to assign to the latter two any property of the lexical items strike and like which is not a property of the lexical item remind; also, no idiosyncratic property of the latter should be assigned to the semantic primes, as it would be carried over to the lexical items strike and like if they, rather than remind, were inserted.

With respect to (B) and (D) above, it became apparent to researchers attempting to account for an increasingly large body of facts, that the deep structure of the Standard Theory was not deep enough. As the deep structure was "receding" towards semantic representation, there came a moment where it was no longer obvious that syntactic deep structure and semantic representation had to be kept distinct. Every time the deep structure was brought closer to the semantic representation, no need was discovered for relating deep structure to surface structure by operations other than transformations. If deep structure is indistinct from semantic representation, the need for projection rules disappears, and the underlying and surface representations can be related by a homogeneous set of operations, namely, transformations. In this way, considerable duplication can be avoided. Postal (1970) points out that the meaning of pork--which is something like "MEAT THAT COMES FROM PIGS"--is represented as a set of semantic markers, while the phrase "meat that comes from pigs"--which has presumably the same semantic representation--is represented as a tree in deep structure. The representing of pork and meat that comes from pigs with two different deep structures is an unnecessary complication of the grammar. The reason is not that the two phrases mean the same thing, but that pork has to be semantically represented as a tree, for semantic representation in terms of unstructured sets of semantic markers has been shown to be incorrect. Weinreich (1966) pointed out that projection rules take a structured tree as input and produce a "heap" of semantic markers where all the significant relations defined in deep structure are lost. The conclusion seems to be that semantic representation must be internally structured, in other words, it may consist of trees, exactly like the syntactic deep structure. Thus, a formal dissimilarity between semantic and syntactic representations disappears.

Some differences between semantic representations and deep structures remain. In the generative semantic view, semantic representations should resemble logical representations, and would thus make use of devices like constants and variables, propositional connectives, set symbols and quantifiers, predicates, and descriptions of sets and quantifiers. In addition to that, semantic representations must distinguish between the descriptions of sets and individuals that are presupposed and those that are asserted. McCawley (1967) proposes to accomplish this by dividing the meaning of an utterance into a "proposition" and a set of "NP-descriptions." It appears that the categories and units used in semantic representation are not the same as those that appeared in deep and surface structure, as the former makes no use of symbols like VP, PP, etc, Moreover, the relations defined on semantic configurations are different from those defined by deep and surface structures. However, it was shown by people that worked within the framework of a grammar with a level of deep structure that the relations and categories needed in deep structure itself could not be the same as those that appeared on the surface. Lakoff (1965 and 1968a) suggested that categories like *manner adverb* and *instrumental adverb* be transformationally introduced. Fillmore (1968) claimed that categories like VP and PP were unnecessary in deep structure, and that moreover relations like *subject* and *object* did not belong to the deep structure, as they could not be consistently interpreted by the semantic component. Therefore, the fact that the relations and categories of the semantic representation differ from those found on the surface comes as no difficulty.

With respect to (C), McCawley (1968c) reports that he knows of no selectional restrictions that depend on purely syntactic information, and that he knows of no semantic information that could not play a part in selectional restrictions. As an illustration of the former claim, consider that there is no English verb that requires a subject pronominalizable as *she*; as an illustration of the latter, consider how specific the semantic content of the subject of a verb like *diagonalize* has to be.

The Semantic Primes

The semantic primes, which label the terminal nodes of underlying trees in Generative Semantics, have not been very clearly discussed anywhere in the literature. It seems clear enough that they need not be logical or psychological primes; they must be primes only with respect to the functioning of the grammar. Thus, although some unit of meaning which we tentatively postulate to be a prime may be further broken down into logically more elementary concepts, we are not justified into postulating the latter as primes unless they can be shown to have some independent linguistic reality (i.e., unless they are independently needed somewhere else in the grammar).

The best way to define the primes that I can think of is to represent them as bundles of semantic and syntactic properties. Among the semantic properties, there would have to be theoretical constructs not too different from Katz & Fodor's semantic markers. This is of course necessary for the operation of selectional restrictions which require semantic information, as I pointed out above. Therefore, the semantic primes are elementary in the sense that they do not exhibit internal structure--i.e., they must not be represented as trees--but they may be complex from a set-theoretical point of view. This decision is similar to decisions in other approaches to transformational grammar. The prime constructs in Fillmore's Case Grammar are the deep cases, but these are not unanalyzable, since they carry features like +Animate (Agent and Dative) or -Animate (Locative and Instrumental).

In addition to the semantic tree that serves as input to the transformational component, the meaning of a sentence has to consist of a set of presuppositions, of topic, and focus.[1] Moreover, the lexical items themselves may contribute to the meaning of sentences, since they may have idiosyncratic properties which cannot be carried over to the primes they replace (on the assumption that the primes are universal, not language-specific).[2]

Lexical Insertion

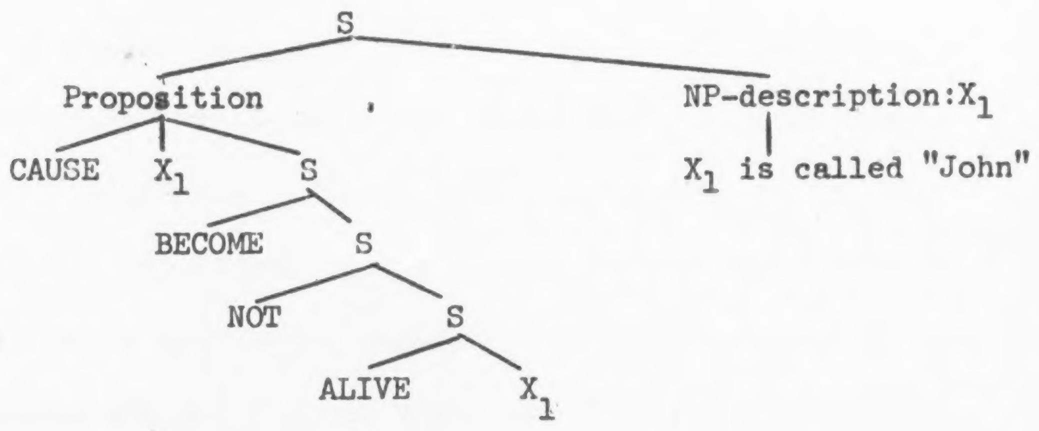
We have seen that lexical insertion cannot be carried out at a single point, in the Generative Semantics grammatical model. McCawley (1968a) considers where insertion could take place. He notes that insertion could not take place at the end of a derivation, for certain operations depend on the presence of specific lexical items, not only their meaning. This follows from the earlier made observation that lexical items have idiosyncratic properties. Thus throw out and eject could probably replace the same semantic configuration, but only the former can be affected by the particle movement transformation.

Another possibility that has to be rejected is that all lexical items might be inserted at the beginning of a derivation. To take an example not given by McCawley, many transformations depend on the items they affect being in the same simplex sentence, and one of these is reflexivization. Consider however (3);

(3) John killed himself,

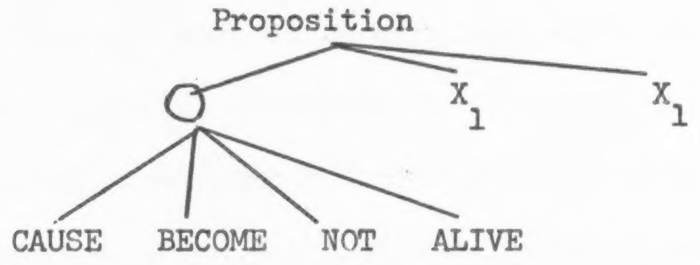
which McCawley would represent as follows:

(3')



Reflexivization cannot apply to this configuration, for the two instances of X_1 are not in the same sentence. If we tried to modify the reflexivization rule so that it apply to this configuration, the conditions for its application would become practically unstatable. It is therefore necessary to have a rule of PREDICATE-RAISING which adjoins a predicate to the next higher predicate. This rule causes the S-node which dominated the raised predicate to be deleted by Ross' tree-pruning principle (1966). If PREDICATE-RAISING applies three times, the two instances of X_1 will be in the same sentence and reflexivization will apply. Now, lexical insertion must follow PREDICATE-RAISING, because the material to be replaced is discontinuous before that rule applies. After it has applied, the proposition looks as follows:

(3")



and the lexical item *kill* may replace the semantic material dominated by the circled node. The items *John* and *himself* will have to await the rule of reflexivization, otherwise the two instances of X_1 would be replaced by *John* and a new lexical look-up would be necessary after reflexivization anyway. Since reflexivization is a relatively late rule--it must follow, for example, SUBJECT-RAISING--it follows that some items would be inserted quite late in a derivation.

The PREDICATE-RAISING rule must be optional and be allowed to apply any number of times. Assuming a configuration similar to (3') except that the two symbols denoting individuals are not coreferential, if PREDICATE-RAISING does not apply, a possible output of the derivation will be

(4) John caused Bill to become not alive.

If it applies once, the output will be

(5) John caused Bill to become dead.

If it applies twice, the output will be

(6) John caused Bill to die.

and if it applies three times, the derivation will result in

(7) John killed Bill.

It must be pointed out that the lexicon need not necessarily contain lexical items that can be matched with structures resulting from the free application of PREDICATE-RAISING. However, as McCawley points out, it is not necessary to constrain this rule so that all the structures resulting from its operation be matched by the specifications for some lexical item. In fact, it might be suspected that such an endeavor would prove impossible. All we need is a condition that derivational outputs are well-formed only if all their terminal elements are lexical items.

Some Syntactic Arguments for Lexical Decomposition

Notice that (3') schematically represents the meaning of (3), but some independent justification for its existence must be found, for we do not want to assert that any definition of an item represents its underlying representation. Such independent justification has been attampted, and I shall cite a few examples.

(a) The *almost* argument

McCawley mentions a suggestion of Jerry Morgan's to the effect that the sentence

(8) John almost killed Harry

is three ways ambiguous, as it can be understood in one of the following ways:

(9) a. John almost did something that would have killed Harry.

b. John did something that came close to causing Harry to die.

c. John did something that brought Harry close to death.

According to Morgan, the ambiguity can be explained by assuming that *almost* is generated at three different points, and a prelexical transformation raises it into a higher clause. Schematically, and disregarding all irrelevant details, the underlying structures of the three senses of (8) would be:

(10) a. almost [John caused Harry to become not alive]

b. John caused almost [Harry become not alive]

c. John caused Harry to become almost [not alive]

This argument, although plausible, seems to me vitiated by the fact that

(11) John didn't kill Harry.

is also three ways ambiguous, as it can be paraphrased as

(12) a. John didn't do anything that would have caused Harry to die.

(12) b. John did something which didn't cause Harry to die (because, e.g. the bullet missed Harry).

c. John did something that should have resulted in Harry's death but didn't (as he didn't hit a vital spot).

However, the ambiguity cannot be explained by postulating the underlying structures

(13) a. not [John caused Harry to become not alive]

b. John caused not [Harry become not alive]

c. John caused Harry to become not [not alive]

for these would result in sentences meaning roughly

(14) a. It is not the case that John killed Harry.

b. John prevented Harry from dying.

c. John resurrected Harry.

It is apparent that the ambiguity of (11) need not be explained by NEG-raising, for (14) a exhibits exactly the same kind of ambiguity. Therefore, the ambiguity of (8) is not explained by (10), and the ambiguity of (8) does not prove that kill needs to be represented as complex. Notice that (9) c and (10) c are paraphrases only if John's act is understood as nonintentional. If it is intentional, the two structures exhibit the following slight difference in meaning:

(15) a. John set out to kill Harry, but only wounded him grievously (which is a possible paraphrase of (8)).

b. John set out to wound Harry grievously, and achieved his goal (which is a possible paraphrase of (10) c, but not of (8)).

I think we can conclude that the rule of almost-raising does not exist, and that the similarity in meaning between the three senses of (8) and (10)a-c results from near-synonymy of underlying forms.

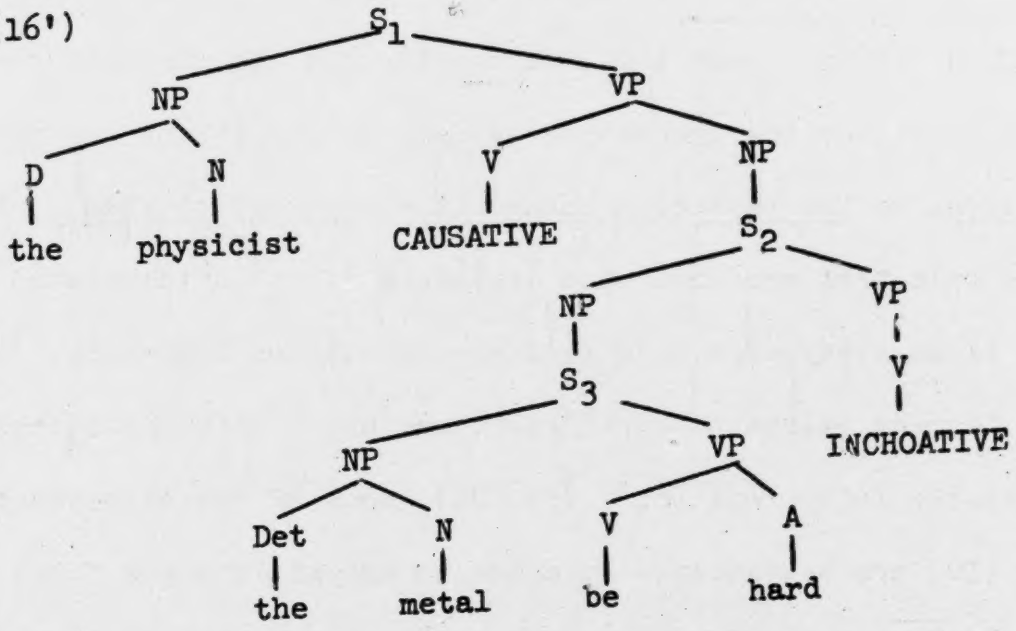
(b) The Adjectival Degree Argument

Lakoff points out that

(16) The physicist hardened the metal,

should have the following underlying structure (schematically):

(16')


S_1
NP
VP
D
N
V
NP
the
physicist
CAUSATIVE
S_2
NP
VP
S_3
V
INCHOATIVE
NP
VP
Det
N
V
A
the
metal
be
hard

In order to prove that S_3 exists, Lakoff points out that (16) is ambiguous between the meanings:

(17) a. The physicist caused the metal to become hard.

b. The physicist caused the metal to become harder.

This ambiguity follows naturally from the property of certain adjectives of allowing a comparative degree, if we assume that the representation of harden contains an adjective.

(c) The it argument

In order to prove that S_2 exists in (16'), Lakoff points out that we can say

(18) The physicist finally hardened the metal, but it took him five years to bring it about.

The antecedent of the second it, he claims, can only be the complement of the causative verb. Notice, however, some difficulties that arise in connection with (19).

(19) The physicist managed to harden the piece of gold, but it could also have happened to a piece of silver.

I find (19) at least three ways ambiguous, as the antecedent of it can be either the inchoative harden, or the string the physicist harden, or the physicist manage [the physicist harden]. The way the rule that produces such instances of it is formulated by Lakoff, it is an everywhere rule that pronominalizes sentences. However, as Chomsky points out in "Deep Structure, Surface Structure and Semantic Interpretation" (fn. 24), none of the antecedents of it in (19) are sentences. In order to account for the first reading of (19), it must be allowed to refer to constituents other than sentences; but in the remaining two readings of (19), the antecedents are not even constituents at any stage of a derivation (in anybody's grammar, as far as I know).

Chomsky takes this evidence as sufficient for concluding that there is no rule of Pronominalization, and that pronouns should be generated directly by the base component of the grammar, their antecedent being determined by later rules of semantic interpretation. Jackendoff, in his dissertation, goes one step further and proposes that transformations not be allowed to perform deletions.

Of course, if Pronominalization is allowed to reduce non-constituents, the constraints on the rule become extremely complex and hard to state. But it is not absolutely necessary to increase the power of Pronominalization in this way. I am aware of two proposals for deriving pronouns like the *it* in (19) transformationally while maintaining the requirement that the antecedent of a pronoun be a constituent. One such proposal belongs to Ross (1969b) and rests on the notion of "sloppy identity." According to the latter, two strings differing only in commanded pronouns may be considered identical for the purposes of deletion (pronominalization being considered a special case of deletion). Sloppy identity enables us to analyze (19) as (19'):

(19') *The physicist managed to harden the piece of gold*, but *the physicist managed to harden it*$_i$ could have happened to a piece of silver$_i$,

as the two underlined strings differ only in that the second contains a commanded pronoun which does not appear in the first. The second string *is* a constituent and the transformational version of Pronominalization is salvaged. The second proposal which circumvents the need for base-generated pronouns is due, I believe, to Postal, and consists in the elimination of all many-place predicates from underlying structures. The base generated only one-place predicates which may be put together by later transformations. In this way, any string can be made a constituent at some stage of a derivation.

(d) The Adverbial Scope Argument

Another argument that supports the lexical decomposition of causatives concerns the ability of adverbs to modify either the INCHOATIVE or the verbal prime immediately below the latter (henceforth the Intermediate Predicate).

An example in which a time adverb refers to an Intermediate Predicate is mentioned by Binnick (I reproduce it below as (20a)):

(20) a. He was jailed for four years.

where the scope of the adverbial phrase for four years is the underlined string in (20) b.

(20) b. X_i CAUSED [INCHOATIVE [he_j was jailed for four years]].

The scope of the adverb in (20) c, d, e is similar to that in (20) a:

(20) c. He wounded her grievously.

d. He broke the glass to smithereens.

e. He browned the cake lightly.

As I pointed out above, the scope of adverbs may be delimited by INCHOATIVE, i.e., it may consist of the complement of the prime CAUSE, as in (20) f, g:

(20) f. He opened the door smoothly.

g. He taught her Spanish quickly.

It should be pointed out that (20) f, g are ambiguous, as the scope of the adverb may be either the complement of CAUSE, or the entire sentence.

(e) The Quantifier Scope Argument

Bach (1968) notes that (21) is ambiguous between a specific and a non-specific reading of a rich man, and proposes to distinguish the two readings by having an existential quantifier generated at different points in the underlying structure, as in (22) a, b:

(21) She wants to marry a rich man.

(22) a. There is a rich man and she wants to marry him.

b. She wants there to be a rich man and that she marry him.

Given the validity of (22) a as a paraphrase of (21), Bach proposes to explain the ambiguity of (23)--which parallels that of (21)--by decomposing look for as try to find and allowing the generation of the quantifier at different points in underlying structure. The two readings of (23) would then be analyzed as (24) a, b, which is analogous to (22) a, b.

(23) She is looking for a rich man.

(24) a. There is a rich man and she is trying to find him.

b. She is trying there to be a rich man and that she find him.

We can see that Bach establishes a proportion, namely, "as (22) is to (21), (24) is to (23); and as (23) is to (21), (24) is to (23)", which, if sound, would support his proposal for the decomposition of look for. Unfortunately, there are two flaws in Bach's argument, which make it impossible to test the validity of his lexical decomposition claim.

First, (22) b and (24) b are not parallel, as the former is a well-formed string while the latter is not (in view of the fact that try, unlike want, is a COSUB).

Secondly, both (22) a and (22) b are incorrect paraphrases of (21). Before showing this, I shall replace (21) and (22) by (21') and (22') respectively, as (21) is not two-way, but three-way ambiguous, and this triple ambiguity is not directly relevant to the Specific/Non-Specific distinction which Bach is trying to account for. Indeed, on the Specific (i.e., referential) reading, the NP *a rich man* is in a position of referential opacity, and the description may belong to either the subject or the speaker of the sentence. This problem does not arise in (21'), where the subject and the speaker are one and the same person.

(21') I want to marry a rich girl.

(22') a. There is a rich girl and I want to marry her.

b. I want there to be a rich girl and that I marry her.

That the specific reading of (21') is not a genuine paraphrase of (22') a becomes clearer when we negate the two sentences:

(21") It is not the case that I want to marry a (specific) rich girl$_i$.

(22") a. It is not the case that there is a (specific) rich girl$_i$ and that I want to marry her$_i$.

(21") is true just in case *I want to marry her*$_i$ is false, while (22") a is true just in case *there is a (specific) rich girl*$_i$ and *I want to marry her*$_i$ are not both true. Notice that (21"), unlike (22") a, necessarily commits the speaker to the belief that *there is a (specific) rich girl*$_i$ is true. As both (21') and its denial (e.g., (21")) commit the speaker to the belief that the rich girl in question exists, we may conclude that there is a (specific) rich girl_i constitutes a presupposition of the Specific (i.e., referential) reading of (21'), and is not a part of its meaning, as Bach claims.

With respect to the Non-Specific reading of (21'), we can see that it is not a paraphrase of (22') b applying the test of negation:

(21'") It is not the case that I want to marry a rich girl (whoever she may be).

(22'") b. It is not the case that I want there to be a rich girl (whoever she may be) and that I marry her.

(21'") is true if I want to marry a rich girl is false, while (22'") b is true if I want there to be a rich girl and I want to marry her are not both true.

It is interesting to note that no presupposition as to the existence of at least one rich girl in the world accompanies the Non-Specific reading of (21'). Therefore, (22') b is even more incorrect than (22') a as a paraphrase of (21'), for the statement there is a rich girl is neither a presupposition nor a part of the meaning of Non-Specific (21'). In order to convince ourselves that the assertion of the latter does not commit the speaker to the belief that there exists (at least) one rich girl in the world, consider the following situation:

> John sees Bill scrutinizing the pavement carefully and asks him what he is doing. Bill answers: "I am looking for a 100 dollar-bill." John joins Bill in his search, but, after a couple of fruitless hours, asks him: "Are you sure you lost one hundred dollars here?", at which Bill replies: "Did I ever tell you that I lost a 100 dollar bill? I merely said I was looking for one!"

The humor results from the fact that John was thinking of a 100 dollar-bill specifically while Bill was thinking of it non-specifically. It is clear that Bill had no reason to presuppose that there was any money lying around, he merely hoped he might be lucky (perhaps because he had found money in that place before, or for some other reason). In fact, he could have said (23):

(23) I am looking for a $100 bill, although I am not sure that there is one to be found.

We have seen that there is a rich girl is neither asserted nor presupposed by Non-Specific (21'). One might be tempted to believe that the existential statement constitutes the deleted protasis of a conditional, so that the source of Non-Specific (21') is something like (24), but this would be incorrect, in view of the non-synonymity of (21') and (24)--which becomes clearer under negation in (25).

(24) I want to marry a rich girl, if there is one.

(25) a. I don't want to marry a rich girl.

b. ?I don't want to marry a rich girl, if there is one.

The conclusion seems to emerge that there is no trace of an existential statement in the underlying representation of Non-Specific (21'). We recall that an existential statement turned out to occur in the underlying representation of Specific (21'), but as a presupposition only. Therefore, Bach's Quantifier scope argument is basically invalid and cannot be used to support the decomposition of look for as try to find, despite the intuitive appeal of the proposal.

Conclusions

In the preceding pages, I have considered the merits and the demerits of a number of arguments advanced in favor of the lexical decomposition hypothesis. We have seen that some arguments were questionable and that even the stronger ones were not conclusive. Despite this, I shall assume the essential validity of Generative Semantics in what follows. In particular, Chapter III will make proposals for the decomposition of some of the COSUB verbs. I shall attempt to offer semantic and syntactic justification for the primes I introduce.[3]

Footnotes

[1] Some interesting problems arise in this connection. Consider, for example, the question whether topicalization should be allowed to change meaning. One of the pairs of sentences treated as transformationally derived in Case Grammar is

(i) a. Bees swarm in the garden.
    b. The garden swarms with bees.

However, they are not paraphrases, for b, but not a, implies that the garden is full of bees. The problem is whether to attribute the difference to topicalization or to a distinction between the underlying representations of the two sentences.

[2] The type of idiosyncratic semantic lexical feature that comes most easily to mind is that which Weinreich (1966) called "transfer-feature". Thus, it seems to me that the adjectives addled and rotten are synonymous on at least one reading, except that the former is said of either an egg or a head while the latter can be predicated of a larger class of objects. It would not do to set up two separate primes one of which would be predicated of either eggs or heads, for there is no guarantee that a prime of the latter type would be needed in any language other than English. If, however, we want to represent all of the meaning in the underlying structure and prevent lexical insertion from contributing semantically, we must require that addled be inserted for a configuration like NOT IN GOOD CONDITION plus the configuration SAID OF AN EGG OR HEAD.

[3] My justification will be essentially limited to the Intermediate Predicates. CAUSE is hard to justify in COSUBs, as one of the best available tests--the one involving adjectival degree--is inapplicable. As for TRY, I do not know of a satisfactory test.

CHAPTER THREE

THE SUBJECT-SUBJECT PROPOSAL

Semantic Arguments for COSUB-Decomposition

In this chapter, I take up Postal's Marked Verb Proposal, which I wish to claim misses a generalization. I shall attempt to show that the correct controller of most (possibly, all) COSUB verbs can be invariably specified as the subject of the sentence immediately above the deletee in underlying structure, provided the lexical decomposition hypothesis of generative semantics is adopted.

At first sight, the COSUB verbs look like a rather heterogeneous collection. Among them, we find verbs of promising, of command, of request, and a large number of causatives. According to Karttunen's taxonomy, some are implicatives, some are IF-verbs, some are ONLY-IF verbs, and some are neither. This latter fact should not be too distressing, however, for there is evidence that the COSUBs are largely independent of Karttunen's classification. Thus, the Subject-Subject Proposal in effect makes the claim that for any lexically decomposed COSUB verb, the Intermediate Predicate is also a COSUB. We can easily convince ourselves that a COSUB verb and its corresponding Intermediate Predicate need not belong to the same class, in Karttunen's system (for a schematic presentation of the latter, see chapter one, page 28). For example, few people would dispute (I think) that (1) can be naturally analyzed as (2):

(1) I enabled John to leave.

(2) I caused John to come to be able to leave.

Notice that able is an ONLY-IF verb, but enable is not. Indeed, consider (3):

(3) a. *John was not able to leave, but he left anyhow.

b. I did not enable John to leave, but he left anyhow.

(3) a implies that John did not leave, while no implication as to what John did follows from the assertion of (3) b.

On the other hand, there are cases when a causative COSUB and its corresponding Intermediate Predicate must belong to the same Karttunenian class. This seems to be the case for the IF-causatives (but see footnote 4).

I suggested above (chapter one, page 27) that COSUB verbs may share the semantic feature of being oriented towards future actions exclusively. If this is correct, the COSUB verbs will turn out to be a semantically homogeneous class. Notice that the COSUB property itself appears to be violated in some cases. Thus, although (5)-(7) are unacceptable, (8)-(10) are perfectly O.K.

(5) *I forced John for Mary to go.

(6) *I am able for my father to pilot a plane.

(7) *I persuaded Mary for Jill to leave.

(8) I intend for Mary to leave.

(9) I asked Mary that Sarah should leave.

(10) I promised Bill that John would leave.

Perlmutter makes a rather convincing argument that in the above cases the complement is in fact embedded inside a sentence whose predicate is let or get and whose subject is coreferential with some NP in the matrix sentence. Apart from the fact that this provides the correct semantic interpretation, Perlmutter advances four syntactic arguments, two of which I mentioned in chapter one, pages 22-23. For ease of reference, I list all four below. Perlmutter points out that we were misunderstood is ambiguous between a one-time and a durative meaning, but that only the former is possible if the sentence is embedded to the verb get. The same lack of ambiguity, suggesting an intervening get-sentence, is observable if the sentence is embedded to any of the main verbs in (8)-(10). Another good argument is that these verbs do not embed statives, but an embedded passivized stative is correct, e.g.:

(11) a. *I intend to know the answer.

b. I intend to be known as "the scourge."

which becomes explicable if we derive (11) b from (12)

(12) I intend to get people to know me as "the scourge."

for get--and causatives in general--is not a COSUB verb.

His third argument is that the passivized agent of a verb like misunderstand can only be a collective noun or a plural but not a singular or a conjunction of singulars both when the matrix verb is get or when it is one of those in (8)-(10) (see example (28) in chapter one). The difficulty with this constraint is that it seems to be highly restricted dialectally (I have in fact been unable to locate even one informant willing to agree with the paradigm in (28), chapter one).

Perlmutter's fourth argument is probably wrong. He points out that we do not find certain "emotive" adverbs in the complements of get, and that this restriction is shared by the COSUB verbs when embedding a passive and when the deep-structure COSUB condition is apparently violated, e.g.:

(13) *We got the doctor to examine him cleverly.

(14) *We intend to be examined cleverly.

However, (14) proves nothing, for the restriction holds even when the complement is active, and there is no reason to suspect an intervening get in (15):

(15) *The doctor intends to examine us cleverly.

I think that emotive adverbs are barred with COSUB verbs in general, and causatives like get fall in this category.

As I pointed out earlier, there are nevertheless two, possibly three, good arguments, which support the semantic intuition of an intervening get fairly well.

The problem to be considered next is whether it is possible to decompose the critical verbs in a natural way with the result that COSUB verbs would be explained by the Subject-Subject Proposal in relation to a small number of Intermediate Predicates. We have seen that intend is a COSUB verb, and there are good grounds to suppose that a prime like INTEND is part of the meaning of persuade and promise. Persuade has already been analyzed in the literature as CAUSE TO COME TO INTEND, and I think that a reasonable analysis of X promises Y to S is X CAUSES Y TO KNOW THAT X INTENDS TO S; this analysis is not complete, for it does not specify that the statement of intention binds X vis-à-vis Y, and this specification is absolutely necessary, or the combination CAUSE TO KNOW could be replaced by an item like declare, which is not a COSUB. The problem is that I know of no good way to represent this fact. It seems clear to me that the binding of the speaker is not a presupposition, but a result of the speech act. Therefore, a complete representation of the sentence in question would perhaps be X CAUSES Y TO KNOW THAT X INTENDS S AND THEREBY S COMES TO BE BOUND TO Y, or possibly X CAUSES X TO COME TO BE BOUND TO Y IN CAUSING Y TO KNOW THAT X INTENDS TO S. The difficulty is that the source of the in-phrase cannot be represented satisfactorily in the latter proposal, and in the former, it is not clear to me how the material CAUSE TO KNOW together with the sentence introduced by AND could be grouped together in a non-ad hoc way in order that the item promise be insertable. Disregarding such formal problems for the time being, we notice that the analysis proposed above for persuade and intend removes the need to mark these two items idiosyncratically, since both are subject to the subject-subject constraint; that is, the complement subjects of both verbs need only be coreferential with the subject of the Intermediate Predicate, which is INTEND in both cases. Notice that the difficulties mentioned in connection with the lexical decomposition of *promise* need no longer concern us, for we can refrain from decomposing *promise* and restrict decomposition to *persuade*; in this case, the Subject-Subject constraint holds all the same.

Alternatively, if we do decompose both *promise* and *persuade*, the Subject-Subject constraint is not the only possible explanation, for Rosenbaum's minimal distance principle is also satisfied. I prefer, however, to retain the Subject-Subject Proposal, as it furnishes something like a semantic explanation, provided that the notion of deep (or "logical") subject can be satisfactorily defined in linguistic theory. As for the minimal distance principle, we saw in chapter one, E , that there is no obvious reason *why it should work*. Put differently, the Subject-Subject solution provides an intuitively satisfactory explanation, while the minimal distance proposal offers only a purely formalistic one.

In a grammar that does not allow lexical decomposition, *persuade* must be analyzed as taking a subject, an object and a complement. The object is a necessary category, for if we view it as part of the complement, we cannot explain why the meaning of the sentence changes when this so-called complement is passivized. Rosenbaum had a valuable insight when he noticed that *persuade* and *believe* were different in that the passive version of the apparent complement of the former, but not of the latter, failed to be a paraphrase of the active. This led him to posit an additional object--coreferential with the complement subject--for *persuade*, but not for *believe*.

This surface object captures the information that the subject acts directly upon the object in achieving its goal, in contradistinction with a causative verb like bring about, which does not specify who the agent acts on in attaining his goal. Given the lexical decomposition proposal for persuade, the information that the agent acts directly on the patient (which ultimately becomes a surface object) is captured by the fact that the patient is the logical subject of INTEND, and that INTEND has no other non-sentential argument; therefore, the subject of the higher predicate CAUSE can only bring about the situation described by the complement by acting on the subject of the intervening INTEND-sentence. The subject of INTEND becomes the surface object of persuade by SUBJECT-RAISING and PREDICATE-RAISING. The SUBJECT-RAISING rule makes it the subject of the higher INCHOATIVE, and, on the following cycle, the object of the prime CAUSE. The PREDICATE-RAISING rule groups predicates together, so that decide be insertable for COME TO INTEND and persuade for CAUSE TO COME TO INTEND. In the semantic representation of bring about, the prime CAUSE directly commands the complement without any intervening clause. Therefore, no information is furnished as to who the "causer" acted upon.

It is my claim that every COSUB verb has a semantic representation identical or including that of persuade, except that the Intermediate Predicate may be different. That is, every verb at issue is decomposable as CAUSE TO COME TO X, in which "X" may, but need not be, INTEND. However, X must exhibit the Subject-Subject constraint. This claim is, of course, an empirically falsifiable one, and not without difficulties (especially for the IF-verbs, as pointed out in footnote 4 to this chapter).

As for enable, allow, and compel, I propose BE ABLE TO, BE FREE TO and HAVE TO as Intermediate Predicates respectively. Of course, these primes should not be confused with the corresponding lexical forms, and those interested in a definition of the primes used in this thesis can find it in Appendix I. It suffices, at this point, to stress that all complex verbs with the Intermediate Predicate BE ABLE TO need not have the same meaning. Thus, empower and enable are not synonymous, but the common core of meaning includes the information that the surface object of either verb is given the possibility to do something, in the former case, by being conferred a necessary degree of authority, in the latter, by having certain obstacles removed from his path. The prime BE ABLE TO is therefore neutral with respect to the kind of ability its subject acquires.

The prime BE FREE TO is somewhat different from BE ABLE TO semantically. The distinction is reflected in the distinction between allow and enable. In allow, the subject removes from the path of the object only those obstacles that depend upon the subject, while in enable, the subject is understood to have removed all the existing obstacles.

The problems related to HAVE TO are discussed in footnote 4 to this chapter.

IF-causatives must, I believe, be distinguished with respect to the degree of resistance on the part of the patient that the agent had to overcome. The reluctance of the patient must somehow be represented in the semantic representation or in the features of the lexical items. I have not investigated whether this information should be given at the semantic or lexical level. There are undoubtedly specifications that must be considered idiosyncratic and given lexically. For example, causative have has the special property that coreferentiality of its subject to its complement subject results in oddity, but only if the predicate of the complement is non-stative. Thus, (16) is odd, although (17) is not:

(16) ?I had myself open the door.

(17) I had myself smeared with mud all over.

This property of have is surprising, as causatives exhibit no coreferentiality restrictions in general (it is quite all right to say I made myself write the story, I forced myself to stay awake, although I compelled myself to look at the picture is somewhat funny).

The reader will notice that I have not yet tackled Postal's verbs describing non-declarative verbal performances, like beg, ask, request, order, etc. The reason is that it is not obvious, on a purely semantic basis, whether the common core of meaning of the verbs of request or command should be represented as TRY TO CAUSE TO COME TO INTEND or as TRY TO CAUSE TO COME TO HAVE TO. I shall attempt to show below that a choice is suggested by some syntactic phenomena, but, at this point, whichever solution we choose would satisfy the Subject-Subject requirement.[1]

An interesting feature that emerged from the above analysis is that the semantic primes that immediately command the complement, namely INTEND, BE ABLE TO, BE FREE TO, and HAVE TO are close in meaning to the non-epistemic reading of the English modals will, can, may and must, respectively. This suggests that the coreferentiality constraints that we have seen are, after all, modal constraints. But my proposal is surely not equivalent to Postal's, for he was concerned with surface modals, occurring in actual sentences, while I am concerned with abstract predicates with modal meaning. Another important difference between Postal's proposal and mine is that his solution covered only verbs of oral performance, and could not be extended to items like compel without considerable unnaturalness; in my proposal, it is a superficial fact that certain verbs allow surface modals to appear in their complements while others do not. Moreover, Postal was led by his focusing on surface modals to positing a distinction between ask and tell, based on the distinction between would and ought. As I pointed out on page 25, this does not constitute a satisfactory explanation.

The proposal that I am making comes very close to the claim made by Robin Lakoff in her dissertation, according to which some modals are automatic consequences of commanding verbs and must be considered meaningless complementizers. It is rather hard to decide whether complementizers are always meaningless. The problem is analogous to that of the head noun The fact that the Kiparskys thought had to appear in the deep structure of the complements of the so-called "factive predicates." Of course, if the head noun is always automatically present, given a certain type of matrix verb, it can be introduced transformationally. But the Kiparskys thought that there are predicates neutral with respect to factivity, and that the head noun had to be in the deep structure, in order to explain the possibility of having factive as well as non-factive meanings. Alternatively, it is possible to claim that there are no neutral predicates, and that there are in fact two homophonous verbs, one factive and the other non-factive. The distinction is sometimes a subtle one, and not at all easy to make. In the cases that interest us here, it is fairly easy to believe that there are two verbs tell, one a declarative and the other a verb of command, or that there are two verbs persuade, analyzable as CAUSE TO COME TO INTEND and CAUSE TO COME TO BELIEVE.

But consider now the verb know in the following sentences:

(18) I know how I should eat.

(19) I know how to eat.

At first blush, (18) and (19) seem to be paraphrases and even transformational variants of a single underlying structure. I think they are semantically distinct, as the complement of (18) is timeless, while that of (19) is future with respect to the time of the utterance. In any event, this is supported by syntactic evidence when we try to use the past in the complements:

(20) I know how I should have eaten.

(21) *I know how to have eaten.[2]

The paradigm exhibited by (18)-(21) constitutes a clear counterexample to Postal's claim that infinitivals with subjunctive meaning are derived from sentences containing modals. One thing seems clear: the modal should and the infinitivals are not identical complementizers. A rather difficult question that arises is whether the verb know in (18) and (19) is the same verb, the subtle distinction in meaning being supplied by the complementizers, or whether the complementizers are meaningless and there are two different verbs know. Some evidence in favor of the latter possibility is furnished by the verb be aware of, which can be used to paraphrase (18) but not (19):

(22) I am aware of $\left\{\begin{array}{c}\text{how}\\ \text{the way in which}\end{array}\right\}$ I should eat.

(23) ?I am aware of $\left\{\begin{array}{c}\text{how}\\ \text{the way in which}\end{array}\right\}$ to eat.

This suggests that there are in fact two items know, only one of which is synonymous with be aware of.

Notice that the verb show, which I propose to analyze as CAUSE TO COME TO KNOW (following Baker), exhibits the same paradigm as know:

(24) I showed John how he should eat.

(25) I showed John how to eat.

(26) I showed John how he should have eaten.

(27) *I showed John how to have eaten.[3]

(24)-(27) suggests that there are two verbs show, as there are two verbs know. This hypothesis is supported by the existence of the item demonstrate, which means CAUSE TO COME TO BE AWARE OF, and has only the meaning of show in (24) and (26), but not (25) and (27):

(28) I demonstrated to John how he should eat.

(29) ?I demonstrated to John how to eat.

On the other hand, there is evidence that would lead us to suspect that the future orientation of (19) and (25) is imposed by the complementizer rather than associated with the commanding prime. Thus, although the subject of eat is understood as John, not I, it can also be understood as a generic. Such ambiguity is not possible with items like order and force.

Syntactic Arguments for COSUB decomposition

In proposing the lexical decomposition of a number of verbs in specific ways, I have used semantic arguments alone. However, such arguments are not sufficient, for an adequate semantic description could also be achieved by assigning semantic markers of the Fodor & Katz variety to lexical items and letting an interpretive semantic component work on such markers. In order to force a decision between interpretive and generative semantics, it is at least necessary to show that syntactic properties of putatively complex lexical items are shared by other items whose meaning we wish to claim is included in that of the more complex ones.

(a) Previously proposed tests

I mentioned, in chapter two, three attempts to prove the existence of a prime CAUSE and one attempt to prove the existence of a prime TRY. In connection with the first three, one is inapplicable to the present situation, as it concerns complements whose predicates are adjectives capable of taking degrees, while our complements must contain non-stative verbs. Of the remaining two, the *almost*-test is wrong, and the one involving pronominalization of sentences with *it* is somewhat dubious, as I pointed out in chapter two. Moreover, this test cannot be applied to all causatives, for *bring about* is not identical to CAUSE. Indeed, *bring about* implies that the situation that came about took some time in doing so, and that moreover "the causer" encountered some resistance in bringing about the situation. We can test this by noting that verbs that can be decomposed into *bring about* and a complement can also be embedded to a verb like *strive*. For example,

(30) I strove to harden the metal.

(31) I strove to persuade him to go.

And indeed, the *it*-test works with persuade, as we can say *I finally persuaded him to leave, but it took me some sweat to bring it about*. However, it does not work with *murder* and *assassinate*, which, according to Lakoff and McCawley, are lexically complex causatives:

(32) ?I $\begin{Bmatrix}\text{assassinated}\\ \text{murdered}\end{Bmatrix}$ the premier, but I do not recall when I brought it about.

The oddity of (32) follows rather naturally from the oddity of (33):

(33) ?I strove to $\begin{Bmatrix}\text{murder}\\ \text{assassinate}\end{Bmatrix}$ the premier.

That both the *it*-test and the *strive*-test fail with *allow* and *empower* should come as no big surprise, for one is not supposed to encounter too much resistance in allowing or empowering someone to do something. On the other hand, *enable* passes both tests much more successfully, as the reader can convince himself, for precisely the opposite reason. Indeed, consider the paradigm exhibited in (34):

(34) a. I $\begin{Bmatrix}\text{?allowed}\\ \text{?empowered}\\ \text{enabled}\end{Bmatrix}$ him to leave, but I do not recall when I brought it about.

b. I strove to $\begin{Bmatrix}\text{?allow}\\ \text{?empower}\\ \text{enable}\end{Bmatrix}$ him to leave.

If these difficulties had not existed and if sentence pronominalization with *it* had been a precyclic rule only, the *it* test could have been used to decide whether *promise* should be viewed as lexically complex or not. That is, we could have used (35)

(35) I promised him to leave, but he did not think that I meant *it*.

to claim that *it* cannot stand for I LEAVE, nor for I PROMISE HIM TO LEAVE, and not even for I WILL LEAVE, for we saw above that modals cannot be considered as the sources of subjunctive infinitives. Therefore, the only possible antecedent for it would have been I INTEND [I LEAVE]. Unfortunately, the antecedent of it can just as well be the surface string to leave, for if someone who just heard me say (35) asks me what didn't he think that you meant?, a perfectly good answer is to leave. This is possible even if promise is non-complex, for it-sentence pronominalization is an everywhere rule. Notice that the answer to leave is equivalent in meaning to the possible answer that I intended to leave, for to leave contains a surface subjunctive which signals the existence of a higher (possibly abstract) verb of intention. But given the everywhere-character of it-sentence pronominalization, no conclusion as to complexity of promise is possible.

It turns out that none of the available tests for proving the presence of CAUSE is of much help. This does not mean that the CAUSE analysis is wrong, and I believe it is not, but only that better tests will have to be found.

In connection with the prime TRY, the only argument that I have read of in the literature is the one offered by Bach in connection with the ambiguity of (36) and (37):

(36) She is looking for a man with a big bank account.

(37) She is trying to find a man with a big bank account.

As I argued in chapter two, this argument does not hold much water either. In view of the above, I shall not try to justify my having posited the primes CAUSE, TRY and INCHOATIVE, for I know of no good syntactic arguments in their favor.

(b) Tests for Intermediate Predicates

I believe that some evidence can be offered in support of the so-called "modal primes" (in the cases I consider, the Intermediate Predicates). My arguments will be based on the claim that certain properties of the modal primes are shared by the lexical items that supposedly contain them. Let it be clearly understood that such evidence is never final; it merely increases the chances that the primes in question be contained in the putatively complex lexical items.

I shall offer four pieces of evidence. The first three will involve properties common to all four primes and to the corresponding complex lexical items. The fourth attempts to distinguish between the primes. It is indeed unfortunate that most arguments do not distinguish between the primes; on the other hand, the primes are sufficiently distinct semantically for it to be clear that if enable is lexically complex, the chances are that its structure is CAUSE TO BE ABLE rather than CAUSE TO INTEND.[4]

The first argument is that the four primes, as well as the putatively complex items, are future-oriented. Therefore, both (38) and (39) are ill-formed.

$$\text{(38) *I} \left\{\begin{array}{l}\text{am able}\\ \text{am free}\\ \text{have}\\ \text{intend}\end{array}\right\} \text{to have gone.}$$

$$\text{(39) *He} \left\{\begin{array}{l}\text{enabled}\\\text{allowed}\\\text{compelled}\\\text{persuaded}\end{array}\right\} \text{me to have gone.}^{5}$$

The second argument is that neither the primes nor the complex items can embed a stative:

$$\text{(40) *I} \left\{\begin{array}{l}\text{am able}\\\text{am free}\\\text{have}\\\text{intend}\end{array}\right\} \text{to be tall.}$$

$$\text{(41) *He} \left\{\begin{array}{l}\text{enabled}\\\text{allowed}\\\text{compelled}\\\text{persuaded}\end{array}\right\} \text{me to be tall.}$$

The third argument is that emotive adverbs cannot occur inside the complements of either the primes or the complex lexical items;

$$\text{(42) *I} \left\{\begin{array}{l}\text{am able}\\\text{am free}\\\text{have}\\\text{intend}\end{array}\right\} \text{to leave} \left\{\begin{array}{l}\text{oddly}\\\text{reluctantly}\\\text{intentionally}\end{array}\right\}.$$

$$\text{(43) *He} \left\{\begin{array}{l}\text{enabled}\\\text{allowed}\\\text{compelled}\\\text{persuaded}\end{array}\right\} \text{me to leave} \left\{\begin{array}{l}\text{oddly}\\\text{reluctantly}\\\text{intentionally}\end{array}\right\}.$$

The fourth argument concerns the fact that deep structure coreferentiality constraints can sometimes be violated on the surface (cf. Perlmutter's dissertation). Such violations were explained by Perlmutter by the presence of an intervening sentence with _let_ or _get_ where the constraints held and which was later deleted. Observe, however, that although all the primes and the complex lexical items at issue can embed _get_ or _let_, the sentence that contains one of these two verbs cannot always be deleted. It is most interesting that the paradigm exhibited by the primes is paralleled by that of the complex lexical items. It will be noted that the deletion of the intervening sentence is sometimes permitted if coreferentiality is superficially satisfied through the passivization of the complement, but not when coreferentiality is violated on the surface; Perlmutter noticed that try falls in this category. In other cases, deletion is out altogether:

(44) I am able $\left\{\begin{array}{l}\text{*to be beaten by Jim}\\ \text{*that Martha should leave}\end{array}\right\}$.

(45) I $\left\{\begin{array}{l}\text{am free}\\ \text{have}\end{array}\right\}$ $\left\{\begin{array}{l}\text{to be beaten by Jim}\\ \text{*that Martha should leave}\end{array}\right\}$.

(46) I intend $\left\{\begin{array}{l}\text{to be beaten by Jim}\\ \text{that Martha should leave}\end{array}\right\}$.

Consider now the behavior of the putatively complex lexical items:

(47) He enabled me $\left\{\begin{array}{l}\text{*to be beaten by Jim}\\ \text{*that Martha should leave}\end{array}\right\}$.

(48) He $\left\{\begin{array}{l}\text{allowed}\\ \text{compelled}\end{array}\right\}$ me $\left\{\begin{array}{l}\text{to be beaten by Jim}\\ \text{*that Martha should leave}\end{array}\right\}$.

(49) He persuaded me $\left\{\begin{array}{l}\text{to be beaten by Jim}\\ \text{that Martha should leave}\end{array}\right\}$.

The correspondence of the two paradigms is apparently perfect. Observe, however, that some problems arise in connection with persuade, as he persuaded me that Martha should leave does not mean he caused me to intend that Martha should leave, but rather he caused me to believe that Martha should leave. I pointed out earlier that persuade is an ambiguous item, and the fact that none of the two sentences in (49) is ambiguous stands in need of explanation. A theory of language that does not incorporate lexical decomposition would note it as an isolated fact about persuade that, on one reading, it requires the for-to complementizer and on the other reading, the that complementizer. On the other hand, a theory of language that does incorporate lexical decomposition would attempt to explain the behavior of persuade on the basis of the behavior of BELIEVE and INTEND.

Consider the first sentence in (49), in which we only get the reading CAUSE TO INTEND. The reading CAUSE TO BELIEVE is out, because there is no sentence *I believe to be beaten by Jim. This sentence is ungrammatical for two reasons: (a) believe with for-to disallows its complement to be future-oriented, i.e., it disallows a subjunctive infinitival; (b) believe disallows EQUI and requires SUBJECT-RAISING (when the complementizer is for-to). Therefore, the only way to make the above sentence grammatical is to say I believe myself to have been beaten by Jim. Notice that (b) explains why we do not get he persuaded me to have been beaten by Jim with the reading CAUSE TO BELIEVE: indeed, we recall that the surface object of persuade is the subject of INTEND or BELIEVE in underlying structure, and that it becomes a surface object by RAISING. However, if the complementizer of BELIEVE is for-to, the subject of have been beaten will have become the object of BELIEVE through the application of RAISING on an earlier cycle. At this point, BELIEVE has a subject, an object and a complement, and if BELIEVE is to be ultimately grouped with the higher CAUSE by PREDICATE-RAISING, its three arguments must move along with it. However, there is no rule that will raise two NPs to object position. That is, there is no rule that will yield **He persuaded me myself to have been beaten by Jim*, and moreover there is no rule that will delete *myself* to yield **He persuaded me to have been beaten by Jim*. Thus, we have an explanation for the non-ambiguity of *persuade* with *for-to*.[6]

Consider now the second sentence in (49), which has only the reading CAUSE TO BELIEVE. There is apparently no reason why the other reading should be blocked. The only device that I know of that can do the job is a "transderivational constraint", of the kind recently proposed by Perlmutter and Lakoff. Transderivational constraints are extremely powerful devices, and I do not know whether they must be part of a grammar. However, should this turn out to be so, we would then have an additional argument that *persuade* is not an atomic unit, but rather arises through a derivation in which prelexical transformations operate on elementary semantic primes.

We shall conclude our discussion of the lexical decomposition of COSUB verbs by considering the behavior of verbs of ordering and request in relation to the paradigm of (44)-(46):

$$\text{(50)}\quad \text{He} \left\{\begin{array}{l}\text{ordered}\\ \text{told}\\ \text{begged}\end{array}\right\} \text{me} \left\{\begin{array}{l}\text{to be beaten by Jim}\\ \text{*that Martha should leave}\end{array}\right\},$$

$$\text{(51)}\quad \text{He asked me} \left\{\begin{array}{l}\text{to be beaten by Jim}\\ \text{that Martha should leave}\end{array}\right\}.$$

We can see that most verbs of ordering behave as if they contained HAVE TO, except *ask*, that behaves as if it contained INTEND.

Earlier (page 66), I maintained that there was no justification for treating *ask* as different from the other verbs, and that Postal's positing of a separate modal constraint for *ask* was unmotivated. It turns out, however, that Postal was right, and that *ask* is apparently different from the other verbs of ordering. This conclusion must, of course, be viewed as tentative until more evidence capable of discriminating between the four modal primes is produced. If such evidence turns up, it should cause no big surprise, for *ask*, even on the interrogative reading, has some surprising properties.

We recall the paradigm mentioned in chapter one and which I reproduce below:

(52) I asked John to leave.

(53) I asked John when to leave.

It seems that *ask* is a verb of request in (52) and an interrogative in (53). As interrogatives do not appear to be future-action-oriented, it is not obvious why the subject of *leave* should be understood only as *I* but not as *John* in (53). We recall that McCawley espoused the proposal (originally made by Jerry Morgan, I believe) that interrogative *ask* be analyzed as *ask (or request) to tell*, and suggested that (53) be derived from (54):

(54) I$_i$ asked John$_j$ to tell me$_i$ (the answer to the question) when I$_i$ should leave.

The only difficulty with this proposal is that it does not explain why *me* and the second *I* should be coreferential, for telling someone the answer to a question seems to be a declarative performance.

I think we can eliminate this difficulty in light of the discussion on pages 67-69 , which led to the conclusion that modals and infinitives are distinct complementizers, and that only the infinitive is future-action-oriented and therefore requires a unique controller. We must therefore modify (54) by deleting the answer to the question and by replacing should with an infinitive. In the new version of (54), the complement of tell becomes future-action-oriented, a point supported by the ungrammaticality of (55):

(55) *I asked John to tell me when to have left.

If the modified version of (54) is indeed the source of (53), then the ungrammaticality of (55) would lead us to predict that (56) will also be ungrammatical, which is precisely what turns out to be the case:

(56) *I asked John when to have left.

Footnotes

[1] For some problems arising in connection with the class of verbs mentioned in this paragraph and their implications for the validity of the Subject-Subject Proposal, see the Epilogue to this chapter.

[2] Notice that the ungrammaticality of (22) is not due to the fact that know embeds a stative (have). Indeed, (i) is grammatical while (ii) is not.

(i) I know where John has been living since 1950.
(ii) *I know where to have been living since 1950.

[3] A possible alternative explanation for the paradigm (25)-(28) might be that (25) and (26) differ semantically in that the former suggests a particular occasion when eating takes place while the latter is timeless. In that case, (28) could be semantically incongruous rather than syntactically deviant; indeed, the timelessness associated with the infinitival complementizer is incompatible with the past tense.

[4] It constitutes a weakness in the Subject-Subject Proposal that I have been unable to find lexical equivalents for the Intermediate Predicates of IF-causatives. The closest we can get to such an Intermediate Predicate is to select *have to*, which looks like an IF-verb up to a point, but does not make it all the way. Thus, (i) a is unacceptable, but (i) b is not:

(i) a. *I had to go, but I did not go.
b. I had to go, but Mary prevented me.

The only way out of this difficulty is to posit a prime HAVE TO which differs from *have to* in being an IF-predicate. This solution, although unfortunate, is not without precedent. For example, Leroy Baker analyzes *learn* as *come to know* and *teach* as *cause to come to know* in his doctoral dissertation. However, *learn* and *teach* are non-factives while *know* is a factive, and Baker's analysis seems to require a non-factive KNOW which happens not to be lexicalized in English. Such a situation is undesirable, as it weakens arguments that put forward shared constraints of some lexically complex verb and its immediate predicate. Indeed, as we cannot test the acceptability of sentences containing primes, we are forced to use the corresponding lexical items instead. That is, we are forced to use examples with *know* and *have to*, when we would like to use KNOW and HAVE TO respectively. As I pointed out above, this weakens certain claims that we may want to make, but I am not aware of a more satisfactory solution at this point.

[5] Notice that, due to the ambiguity of the infinitive perfect, it is necessary to add a past time adverb in order to make (i) and (ii) truly unacceptable. In fact, the acceptability of (i) and (ii) depends on the continuation:

$$\text{(i) I intend to have left} \left\{\begin{matrix}\text{by tomorrow} \\ \text{*yesterday}\end{matrix}\right\}.$$

$$\text{(ii) He persuaded me to have left} \left\{\begin{matrix}\text{by the following evening} \\ \text{*on the previous morning}\end{matrix}\right\}.$$

[6] There is one embarrassing fact which weakens the claim that INTEND is the Immediate Predicate of *persuade*. Thus, (i) is acceptable, but (ii) is not.

(i) John intends for Mary to go.
(ii) *I persuaded John for Mary to go.

I have no explanation for this fact, and am forced to adopt the usual (legitimate?) solution to the effect that *persuade* does not share all the syntactic properties of the lexical items corresponding to the primes it contains.

Epilogue to Chapter Three

There are some rather serious problems with the decomposition of the verbs of ordering and request, in particular with the prime TRY and the Intermediate Predicates.

Thus, the reason why TRY was selected was that, like the verbs of ordering and request, it implies nothing about the truth of its complement, whether it is asserted or denied. Notice, however, that the verbs of ordering and request, unlike the verb try, are performatives. Moreover, it is not possible for Pro-forms or deleted sub-strings to be understood as identical with the complement of TRY, as we can see in the following paradigm:

(i) I tried to get him to intend to go, but I failed.

(ii) *I ordered him to go, but I failed.

A possible way to explain the above paradigm away would be to point out that a complete analysis of verbs of ordering and request would have to include some specification that the performance in question is an oral one. Such additional specifications can be shown to interfere with anaphoric processes in independent cases, as in the paradigm below.

(iii) John killed Mary, but I'm not sure when he brought it about.

(iv) ?John assassinated the Premier, but I'm not sure when he brought it about.

It will be noticed that the representation of assassinate has been claimed by various Generative Semanticists to consist of the representation of kill plus the specification that the victim is a person of some importance, whose death came about for political reasons.

With respect to the possible Intermediate Predicates of verbs of ordering and request, it will be noticed that they do not seem to be semantically necessary, since X orders Y to go seems to be roughly equivalent to X tries to cause Y to go, and there is hardly an intuitive need for an Intermediate Predicate embedded between CAUSE and go. The sole justification for such a predicate is the need for a COSUB, as CAUSE does not satisfy this condition. Thus, the postulation of COSUB Intermediate Predicate in this case appears somewhat ad hoc and needed only to make the Subject-Subject Proposal work.

It is to be hoped that the problems I brought out here are due to the specific analysis proposed for verbs of ordering and request, and that they do not invalidate the Subject-Subject Proposal. Further research is necessary, but should it eventually turn out that there are no good motivations for maintaining the Subject-Subject Proposal in its present form, it will still be possible to withdraw to a weaker position, without reverting to the Marked-Verb Proposal. The main defect of the Marked-Verb Proposal is its claim that controller selection is an idiosyncratic matter which does not allow for general predictions. If this were correct, we would expect a different distribution of exceptions in other languages in which there are counterparts of the English verbs mentioned in the discussion and a rule of NP-Deletion. However, in all languages that I know of, the controller for verbs like promise is its surface subject and for verbs like order it is the surface object, which suggests that there are general semantic factors involved in controller selection. Notice that the Subject-Subject Proposal makes in fact two claims,that set it apart from the Marked-Verb Proposal:

(a) the controller is discoverable by general principles

(b) the controller is always the subject of the Intermediate Predicate.

These two claims are mutually independent, and we can retain the former while rejecting the latter. Thus, if it should turn out that neither the decomposition of promise nor that of order (and their likes) can be carried out along the lines suggested in this chapter, and that these verbs are, after all, underlain by two-place elementary predicates, we shall have the option of dividing the COSUB class into two subclasses. To the two semantic features that we used for the characterization of COSUBs, we shall add a feature like "oriented toward a future action that its first argument (i.e., deep subject) can carry out." Verbs like promise will bear the value "+" for this feature, while those like "order" will bear the value "-". As for verbs that allow decomposition into Intermediate Predicates, we can consider this feature inapplicable to them (or vacuously taking the value "+").

APPENDIX TO CHAPTER THREE

The Semantic Primes Used in this Chapter

In this Appendix, I define the semantic primes that occurred in the body of the thesis. It will be noted that the semantic content of primes is generally defined in relation to some lexical item, which, in a somewhat loose sense, "corresponds" to it. The following seven primes are defined below: CAUSE, INCHOATIVE, TRY, INTEND, BE ABLE TO, BE FREE TO, HAVE TO.

CAUSE

(1) It means roughly bring about, without the idiosyncratic connotations of the latter (e.g., that its complement is slow in coming about, or that some resistance has to be overcome in order that the state of affairs described by the complement come about).

(2) It takes two arguments, a subject and a sentential complement.

(3) It is non-stative.

(4) Its complement subject may or may not be coreferential with its own subject.

(5) It may embed itself, like in I brought it about that John murdered his best friend.

(6) It is an IF-predicate, in Karttunen's sense.

INCHOATIVE

(1) It means roughly come about (again without the possible idiosyncrasies of the latter).

(2) It takes one argument, a sentential subject.

(3) It has some stative properties, although its status is not entirely clear, as can be seen in the following paradigm:

(i) I think Mary is reddening

(ii) *Redden!

(iii) *What Mary did was redden.

In addition, some people find stative predicates odd with time adverbs. Thus, (iv) strikes some people as strange. But (v) is certainly all right:

(iv) ?The president was popular at four o'clock.

(v) The president became popular at four o'clock (when he told the nation he was ending the war).

(4) As far as I can judge, INCHOATIVE does not embed itself, as we do not get *It's coming about that the metal is hardening. Some people do get It came about that the metal hardened, but I do not think that come about is understood as inchoative in this case; rather, it seems to be synonymous with happened.

(5) It is an IMPLICATIVE predicate.

TRY

(1) It has roughly the meaning of try or attempt.

(2) It is non-stative.

(3) It takes two arguments, an animate subject and a sentential complement.

(4) It does not embed itself.

(5) It embeds non-statives, and also certain statives, but not all:

(i) I tried to break into the house.

(ii) I tried to hate Mary, but I couldn't.

(iii) ?I tried to be popular.

(iv) *I tried to be tall.

What is going on here? I think that in (ii)-(iv) there is an intervening sentence with a causative predicate (like Perlmutter's get) which is later deleted. In fact, the only possible interpretation of (iii) is I tried to bring it about that I become popular. If this is correct, we can say that TRY can only embed a non-stative. The unacceptability of (iv) can be attributed to the semantic incongruity of the putative complement of try, i.e., I brought it about that I became tall.

(6) It is future-action-oriented, and requires coreferentiality between its subject and its complement subject in underlying structure.

(7) As Perlmutter points out, when (6) is apparently violated, there are grounds for assuming an intervening sentence with let or get. However, this intervening sentence can only be deleted if the process of deletion does not lead to violation of coreferentiality in surface structure. Thus, we get (v) but not (vi):

(v) I tried to be arrested.

(vi) *I tried for Pat to leave.

INTEND

(1) It has roughly the meaning of intend in a definite sense. The last four words are important, for (i) is a good sentence for some speakers. However, we rule out (ii) by fiat:

(i) I intend to leave, but I have not finally made up my mind yet.

(ii) *I INTEND to leave, but I have not finally made up my mind yet.

(2) It is a stative.

(3) It takes two arguments, an animate subject and a complement.

(4) It does not embed itself.

(5) It does not embed statives.

(6) It disallows emotive adverbs in its complement, e.g.:

(iii) *I intend to go reluctantly.

(7) It is future-action-oriented, therefore the time of its complement is future with respect to the time of the clause containing INTEND. As a consequence, underlying-structure coreferentiality is required between the subject of INTEND and its complement subject.

(8) Apparent violations of (7) entail a deleted underlying sentence. Unlike TRY, INTEND allows the deletion of this sentence in all cases:

(iv) I intend to be arrested.

(v) I intend that Ben should leave.

BE ABLE TO

(1) It has roughly the meaning of non-epistemic can, and is completely unmarked for the kind of ability it describes (such as

internal ability, ability resulting from the removal of external obstacles, etc.).

(2) (7) are identical to the corresponding requirements for INTEND. In connection with (5), such sentences as She can be happy, (if she wants to), are presumably decomposable as SHE IS ABLE TO [SHE CAUSE [INCHOATIVE [SHE BE HAPPY]]].

(8) It disallows any apparent violation of (7), as can be seen in the following paradigm:

(i) *He is able to be arrested.

(ii) *He is able $\left\{\begin{array}{l}\text{that Mary should be arrested}\\ \text{for Mary to be arrested}\end{array}\right\}$.

(9) It is an ONLY-IF-predicate.

BE FREE TO

(1) It has roughly the meaning of non-epistemic may, as in I may go, meaning I have permission to go, but not as in You may go, meaning you are hereby given permission to go. BE FREE TO is, in some intuitive sense, partially similar in meaning to BE ABLE TO; the difference is, I think, that having permission to do something does not make one able to do that thing (as one may lack the internal ability to do so, or there may be further external obstacles). On the other hand, BE ABLE TO implies that there are no obstacles of any kind. Thus, although I enabled him to win the fight only asserts that I have removed all obstacles that might have prevented him from winning the fight, it also implies that he has the internal ability to carry it out, for (i) is very odd:

(i) ?I enabled him to win the fight, but he couldn't do it.

(2) - (7) are identical to the corresponding requirements for INTEND.

(8) It allows apparent violations of (7) in underlying structure, provided that there be no violations in surface structure:

(ii) I have permission to be arrested.

(iii) *I have permission for Mary to leave.

HAVE TO

(1) It has roughly the meaning of non-epistemic must.

(2) - (7) are identical to the corresponding requirements for INTEND.

(8) It allows apparent violations of (7) in underlying structure, provided that there be no violations in surface structure:

(i) I have to be arrested.

(ii) *I have (to) for Mary $\left\{\begin{array}{l}\text{to leave}\\ \text{to be arrested}\end{array}\right\}$.

(9) It is an IF-predicate by fiat, in contradistinction to its corresponding lexeme, have to.

CHAPTER FOUR

ADDITIONAL PROBLEMS CONCERNING EQUI

Lee's PEQUI-CEQUI Proposal

In proposing to break down EQUI into two parts--DOOM MARKING and DOOM DELETION (see end of chapter one)--Postal leaves open the question whether DOOM MARKING is one rule, or several distinct rules applying at different points in a derivation and "conspiring" at creating the environment ultimately required for DOOM DELETION.

A proposal to have EQUI apply at two points in a derivation is found in Lee (1969). Lee notes the existence of by-clauses in which two coreferential NPs have been deleted, like:

(1) The Premier was assassinated by being shot.

and whose source is presumably:

(2) X assassinated the Premier by [X shot the premier].

I assume that by-clauses of this kind, which make precise the method used in carrying out the activity described in the main clause, are subject to what we may call a "holistic coreferentiality constraint", under certain conditions. By holistic coreferentiality constraint I mean that all the NPs represented in the main clause must have coreferents in the underlying structure of the by-clause. The conditions under which this constraint holds are (a) the verb of the main clause is non-stative and (b) it is understood that the subject acted *directly* upon the object. Condition (a) is probably redundant, for stative verbs do not take *by*-clauses of this kind. Condition (b) is, however, important, for if it is not satisfied, the constraint does not hold, as in (3), which is grammatical:

(3) John frightened Mary_i by shooting Bill.

Thus, we can have (4), but not (5), (6) or (7):

(4) John_i wounded Mary_j with a knife_k by hitting her_j with it_k.

(5) *John_i wounded Mary_j with a knife_k by hitting Bill with it_k.

(6) *John_i wounded Mary_j with a knife_k by hitting her_j with a bludgeon.

(7) *John_i wounded Mary_j with a knife_k by Bill's hitting her_j with it_k.

A variant of (4) is (8), in which coreferentiality relations are also obligatory, but the function of the coreferential NPs is different in the two clauses. However, if Lakoff's claim that instrumental adverbs are derived from clauses containing *use*, the difference between (4) and (8) is purely superficial.

(8) John_i wounded Mary_j with a knife_k by using it_k to hit her_k (with).

Lee notes that the deletion of both NPs is obligatory in (1), as we get neither (9) nor (10):

(9) *The Premier was assassinated by his being shot.

(10) *The Premier was assassinated by being shot by $\left\{\begin{matrix}\text{him}\\ \text{someone}\end{matrix}\right\}$.

As both NPs to be deleted are in the same clause, and as both controllers are also in the same clause, we cannot have the two NPs deleted by having EQUI apply on two separate cycles. On the other hand, it is not possible to increase the power of EQUI and allow it to delete all coreferential NPs in a subordinate clause, for this would yield ungrammatical sentences like (11) or (12):

(11) *Someone assassinated the Premier by shooting with a gun.

(12) *John wounded Mary with a knife by $\left\{\begin{array}{l}\text{hitting with}\\ \text{using to hit with}\end{array}\right\}$.

Both NPs can be deleted only when they are in subject position. The first application of EQUI has to be pre-cyclical, for EQUI, by its very nature, cannot apply on the first cycle. However, X must be deleted in (2) before passivization has applied in the first cycle and removed it from subject position. As we cannot have a first cycle rule that looks at a higher sentence, the conclusion that the rule that deletes X is precyclic seems inescapable. Let "PEQUI" = "precyclic EQUI" and "CEQUI" = "cyclic EQUI." Lee notes that if EQUI precedes PASSIVE, the latter must be modified to allow it to apply to subjectless sentences. This is not necessary in our framework, where EQUI is replaced by DOOM MARKING at this point. As the doomed subject is not actually removed from the string, the SD of PASSIVE need not be modified.

With respect to CEQUI, Lee claims that it must follow PASSIVE, in view of (13):

(13) Mary wants to be beaten by Otto.

As can be seen from (13), Lee's ordering is not intended within the cycle. However, I believe that such a claim needs to be made, in view of the following: in order to derive (1) from (2), we saw that PEQUI and passivization on the first cycle are required. Suppose now that CEQUI precedes PASSIVE; if CEQUI applies on the second cycle and PASSIVE (an optional rule) does not, we get the ungrammatical (14):

(14) *Someone assassinated the Premier by being shot.

If an interpretation can be imposed on (14), it can at best be that the assassin was shot. This suggests that the controller in CEQUI must be in subject position, and the Premier can get to that position only through PASSIVE. Therefore, CEQUI, (or DOOM MARKING), must follow PASSIVE.

It is interesting to note that both kinds of EQUI that apply to by-clauses of the sort considered by Lee work from subject to subject. In chapter three, I argued that deep structure coreferentiality constraints for purpose-oriented verbs must also be subject-subject, and it would be interesting to see whether the two kinds of EQUI proposed by Lee can apply to sentences with COSUB verbs, and if so, whether they both work from subject to subject. The reason for looking into this matter is that by-clauses and clauses containing COSUB verbs have something in common: they both exhibit deep structure coreferentiality constraints. We saw in chapter one that verbs that do not require coreferentiality of some kind allow more than one controller, therefore we cannot impose such a condition on EQUI with respect to them. It seems, however, that we must impose the subject-subject condition on CEQUI in *by*-clauses, which makes one wonder whether the subject-subject condition must be stated both in deep structure and in the structural description of CEQUI. Before attempting to answer the question, let us consider the behavior of other sentences in which coreferentiality constraints appear to be needed.

Consider the following sentences:

(15) John_i asked the guard to admit him_i to the building.

(16) *John asked the guard_j to be admitted by him_j to the building.[1]

(17) John asked the guard to be admitted to the building.

(18) *The guard was asked by John to be admitted to the building.

(19) The guard was asked by John_i to admit him_i to the building.

In (15), the object of *ask* and the subject of *admit* must be coreferential, and, if *ask* is decomposed as TRY TO CAUSE TO COME TO INTEND--as I suggested in chapter three--the constraint concerns the subject of INTEND and the subject of *admit*. In order to get (15), there are no compelling reasons for claiming that EQUI is precyclic or cyclic. But in order to get (17), EQUI must apply both precyclically and cyclically. In particular, the deep subject of *admit* must be deleted (in fact, doomed) precyclically, for cyclical EQUI can apply only on the second cycle, after PASSIVE has applied on the first cycle, removing *the guard* from subject position. We cannot dispense with PEQUI, for we must avoid the ungrammatical (16). With respect to CEQUI, we see that it must follow PASSIVE. Indeed, if it precedes PASSIVE, it will apply on the second cycle to yield (17). But then it will be hard to explain why the application of PASSIVE to (17) results in the ungrammatical (18), and we would have to invent ad-hoc restrictions on the application of PASSIVE. However, if EQUI follows PASSIVE, we get (17) in case PASSIVE does not apply. If PASSIVE does apply, EQUI becomes inapplicable, for the subject-subject condition is not satisfied, and (18) is blocked. We see that in this case, as in the case of the by-clauses, we must impose the subject-subject condition on CEQUI.

Consider now the set:

(20) John promised Bill to take him to the hospital.

(21) Bill was promised by John to be taken to the hospital (*by him)[1]

(22) *Bill was promised by John to take him to the hospital.

(23) John promised Bill to be taken to the hospital.[2]

This set raises much more difficult problems than the previous examples. We cannot explain the ungrammaticality of (22) by imposing the subject-subject condition on CEQUI, for (22) is derived from (20) without any application of EQUI. Indeed, the subject of take is doomed by PEQUI. If nothing happens on any cycle, (20) results. But if PASSIVE applies only on the second cycle, the result is ungrammatical. However, if PASSIVE applies on both cycles, the result is the grammatical (21).

What is going on here? It seems that the subject-subject condition on CEQUI is of no avail here, unless we want to make it obligatory even for items already doomed by PEQUI. In any event, there is something intuitively unsatisfactory about a condition that has to be imposed on deep structures as well as on a transformation, and one cannot escape the feeling that a generalization is being missed. This impression is reinforced by the observation that no subject-subject condition is needed for PEQUI, which applies on a structure still undeformed by transformations and in which subject-subject coreferentiality is ensured by the deep structure constraints. Therefore, the subject-subject condition had to be mentioned only for CEQUI, and only in those cases in which deep structure coreferentiality was a requirement. The mess can be straightened out by removing the subject-subject condition from cyclic EQUI, and by imposing the following derivational constraint:

(24) If the subjects of two sentences _must_ be coreferential in underlying structure, their subjects at the end of the cycle _must_ also be coreferential.[3]

Condition: Neither the subject nor the predicate of either sentence has been raised or deleted by the end of the cycle.

The above condition constrains the domain of applicability of (24), which does not hold in sentences like (25) and (26) a.

(25) I intend for John to leave.

(26) a. I persuaded John to leave.

b. John was persuaded by me to leave.

Indeed, underlying structure coreferentiality is satisfied in (25) through a get or let sentence whose subject and predicate have been deleted by the end of the cycle. In (26) a, underlying coreferentiality is satisfied through the Intermediate Predicate INTEND, which has been moved upwards by PREDICATE RAISING before the end of the cycle, and is grouped with the two initially higher predicates INCHOATIVE and CAUSE. As the restrictions on a predicate are not transmitted to the group into which it has been raised, (24) does not hold for the lexical item persuade, inserted in place of that group, and passivization can occur freely, as in (26) b.

(24) does, however, hold for promise, regardless of whether we decompose it or not. If we do not, it holds for obvious reasons. If we do, it holds through the topmost causative sentence, whose subject and predicate are neither deleted nor raised. It is apparent that (24) can handle all the cases discussed in this chapter. The reason why it mentions the output of the cycle rather than surface structure is that the doomed NPs are still available at that point, since the rule that deletes them--DOOM DELETION--is postcyclical. Let us consider one more case which (24) can handle and which the subject-subject condition on cyclic EQUI cannot. It is well-known that purpose clauses require that their subject be coreferential with the subject of the matrix sentence. Consider now the following:

(27) a. We bought the oysters in order to fry them.

b. The oysters were bought by us in order to be fried.

(27) c. *The oysters were bought by us in order to fry them.

The above paradigm is identical to the one formed by (20)-(22). The subject of fry is doomed precyclically, and the ungrammaticality of (27) c results from the mere application of PASSIVE to (27) a. Therefore, the ungrammaticality of (27) c cannot be blamed on CEQUI, and must be handled by (24).

I believe that (24) is a much more satisfactory solution than having both deep structure constraints and the same constraints repeated for a transformation. Notice, however, that (24) is not the only way out that suggests itself. One might think (especially if one finds (21) and (27) b ungrammatical) that deep structure constraints can be eliminated altogether and the subject-subject condition imposed on both PEQUI and CEQUI. This is in fact the solution chosen by Lee. But I tend to reject it for three reasons:

(a) there seems to be an intuitive feeling that the coreferentiality constraint found in by-clauses, future-action oriented clauses and purpose adverbial clauses is required on semantic grounds (see p, 27). If so, it belongs in underlying structure.

(b) deep structure constraints are required in the grammar independently of transformations. Consider, for example, the following:

(28) I killed $John_i$ by stabbing him_i.

(29) *I killed $John_i$ by stabbing $Bill_j$.

The "holistic" coreferentiality requirement of by-clauses cannot possibly be blamed on a transformation.[4]

(c) the only argument given by Lee against Perlmutter's deep structure constraints in invalid. Perlmutter had claimed that persuade required its object to be coreferential to its complement subject, and had illustrated his point with the following examples:

(30) *I persuaded Clarabelle for Clem to plow the field.

(31) I persuaded Clarabelle to plow the field.

Lee claims that the coreferentiality requirement arises only after the introduction of the for-to complementizer, for, if the complementizer is that, no coreferentiality is required:

(32) I persuaded Clarabelle that Clem should plow the field.

However, nothing for the purposes of the present argument follows from (32), for the persuade of (32) and the persuade of (31) are different verbs, although probably related (see also my discussion of this point on pp. 76-77).

Notice that (24) does not remove the need to order CEQUI after PASSIVE, in view of (18).

Grinder's SUPER-EQUI-NP-DELETION Rule

Grinder (1970) claims that there is a rule that deletes NPs under coreferentiality conditions across intervening sentence nodes, as in John knew that criticizing himself would be difficult, and argues that this rule--SUPER-EQUI-NP-DELETION--should be adjacent to EQUI in the cyclical ordering. The natural next step is to collapse EQUI and SUPER-EQUI, and Grinder proposes just this. The problem that confronts us now is whether Grinder's proposal is compatible with the discussion in the previous section, since Grinder proposes the ordering SUPER-EQUI, RAISING, PASSIVE, and we concluded that CEQUI follows PASSIVE. I believe that the conflict between Grinder's proposal and mine is only apparent, since the ordering he proposes is not the only possible one.

In arguing for an ordering of SUPER-EQUI before RAISING and PASSIVE, Grinder points out that deletion is normally blocked by an intervening NP, unless the latter is a clause mate of the controller (this is, in fact, predicted by Langacker's principle of control). However, an intervening NP that became a clause mate of the controller through RAISING blocks the application of SUPER EQUI. Therefore, SUPER EQUI must precede RAISING. Grinder's examples are given below:

(33) Tom told Harriet that it would be tough to prevent $\left\{\begin{array}{l}\text{himself}\\ \text{herself}\end{array}\right\}$ from crying at the wedding.

(34) *Elmer claimed that Jennifer knew that it was necessary to brush his own teeth.

(35) *Elmer claimed Jennifer to have known that it was necessary to brush his own teeth.

(36) *Jennifer was claimed by Elmer to have known that it was necessary to brush his own teeth.

In (33), *Harriet* does not block SUPER EQUI. However, in (35), *Jennifer* does block it, although it is a clause mate of *Elmer*. Therefore, SUPER EQUI must apply to a structure like (34), where *Jennifer* is not yet a clause mate of *Elmer*. It seems pretty well proven that SUPER EQUI must precede RAISING.

With regard to the ordering of SUPER EQUI and PASSIVE, Grinder points out the ungrammaticality of (36), in which Elmer is closer to the deleted subject than Jennifer is, and still cannot function as controller. Notice, however, that (36) can be ruled out if we extend (24) to cover such cases. That is, if we slightly modify (24) to make it read as follows:

> (24') If the subjects of two predicates are coreferential in underlying structure, their subjects must be coreferential in the output of the cycle.

Of course, (24') is irrelevant if RAISING must precede PASSIVE. But it has recently been shown that if RAISING has the power to raise a subject to either object or subject position, it becomes unnecessary to order RAISING before PASSIVE. In conclusion, we can collapse EQUI and SUPER EQUI and still explain (18), for the ordering PASSIVE, SUPER EQUI, RAISING is, in fact, perfectly possible.

Regardless of this issue, I believe that Grinder is right in claiming that there are not two separate rules-- EQUI and SUPER EQUI-- and that EQUI is a special case of SUPER EQUI. Both rules operate within the same limits--those of the principle of control--except that we have an instance of EQUI proper when the complement subject happens to be one clause below the controller. In general, we do not find cases of SUPER EQUI, where controller-uniqueness is determined by deep structure coreferentiality constraints, for SUPER EQUI occurs when the matrix verb is a declarative. The reason for this is that non-declaratives require a coreferential subject in the immediately lower sentence. There are, however, cases of SUPER EQUI in which the controller has to be unique, and Grinder considers such cases to be counterexamples (see his footnote 9). As an instance, consider (37), in which the subject of *admit* is understood as *John* but not *the guard*:

(37) John asked the guard whether it would be difficult to be admitted to the building.

We recall McCawley's proposal presented in chapter three, according to which (37) would have a source like (38):

(38) John$_i$ asked the guard$_j$ [the guard$_j$ tell John$_i$ whether $\left\{\begin{array}{l}\text{for him}_i\\ \text{*for him}_j\end{array}\right\}$ to be admitted to the building would be difficult].

It seems that *tell* is indeed a declarative, so that the controller restriction appears puzzling. Recall, however, the discussion in chapter three, pp. 67-69 , where I suggested that deep structure coreferentiality constraints may hold even for declaratives, if the complement is future with respect to the matrix declarative verb. And in fact, the constraint no longer holds if we change the tense of the complement of *ask* in (37) to yield (39):

(39) John asked the guard whether it had been difficult to be admitted to the building.

The subject of admit can be understood as either *John* or *the guard*. The reading with *John* as controller is semantically odd in ordinary circumstances, but quite all right if we assume that John has been struck by temporary amnesia and is asking the guard to tell him about an experience that he cannot remember anything about. We see that (37) is not really a counterexample to the principle of control, as Grinder thought.

Let us now inquire whether SUPER EQUI, like EQUI, must apply both precyclically and cyclically. It seems unlikely that we should find instances of precyclic SUPER EQUI. Indeed, recall that PEQUI was necessary for *by*-clauses and for complements of a verb like *ask*, in which two NPs had to be deleted under conditions of coreferentiality. I do not see how other sentences could intervene between *by*-clauses and their matrices; as for *ask*, we only find the coreferentiality requirement with respect to the immediately lower clause, not all lower clauses. Thus, although (40) is bad, (41) is not:

(40) *John asked the guard to be admitted to the building by Bill.[1]

(41) John asked the guard whether it would be difficult to be admitted to the building by Bill.

It seems that SUPER EQUI should be collapsed only with CEQUI.[5] The cyclicity of SUPER EQUI is apparent in sentences like (41), where deletion must follow the application of PASSIVE on the first cycle. Additional evidence of the cyclic character of SUPER EQUI is furnished by the following very nice example given by Grinder:

(42) That it was likely that washing $\left\{\begin{matrix}\text{himself}\\ \text{*herself}\end{matrix}\right\}$ would disturb Pete surprised Eileen.

(43) That washing $\left\{\begin{matrix}\text{himself}\\ \text{herself}\end{matrix}\right\}$ was likely to disturb Pete surprised Eileen.

(42) and (43) have the same deep structure, except that EXTRAPOSITION has applied to the former and RAISING to the latter. In fact,

EXTRAPOSITION is irrelevant to (42), as it is probably a postcyclic rule (as claimed by Ross in his dissertation). The ungrammaticality of (42) when *Eileen* is the subject of *wash* follows from the ungrammaticality of (44) under the same circumstances:

(44) That that washing $\left\{\begin{array}{l}\text{himself}\\ \text{*herself}\end{array}\right\}$ would disturb Pete was likely surprised Eileen.

I assume that (42) was chosen rather than (44) as repeated self-embedding makes the acceptability of the latter hard to judge. The important distinction between (42) and (44) on the one hand and (43) on the other is that, in the former two cases, *Eileen* cannot be the controller, since *Pete* controls the subject of *wash*; in the latter case, however, *Pete* can act as controller before RAISING applies, while *Eileen* can be the controller after RAISING has applied. Indeed, notice that after the application of RAISING on the third cycle, *Pete* no longer commands the subject of *wash*, and therefore fails to control it.

Before concluding, I wish to stress an additional important point made by Grinder. He points out that the principle of control is a little too strong, as it would rule out the grammatical (45), together with the ungrammatical (46)-(48).

(45) John said that making a fool of himself disturbed Sue.

(46) *John said that it disturbed Sue to make a fool of himself.[6]

(47) *That it disturbed Pete to wash herself surprised Eileen.

(48) *That washing herself disturbed Pete surprised Eileen.

Therefore, SUPER EQUI--which includes the former EQUI--should be formulated as follows:

(49) An NP_c can delete a coreferential NP_k that is the subject of a clause embedded at a point arbitrarily lower than NP_c, unless there is an NP_i such that NP_i controls NP_k, and (a) either NP_i precedes NP_k or (b) NP_i linearly intervenes between NP_c and NP_k.

Footnotes

[1] Sentences (16), (21), and (40) are fine if by him and by Bill are contrastively stressed. D. T. Langendoen pointed out to me that the rule of DOOM-DELETION may be constrained to apply only to items that do not bear contrastive stress.

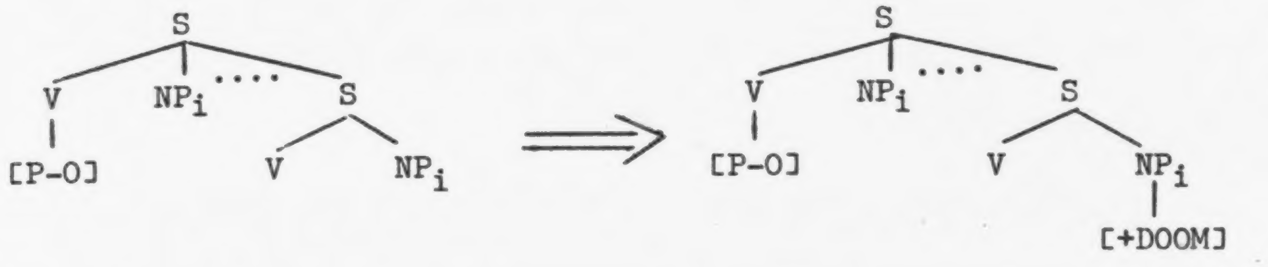
[2] Notice that in (21) and (23) the underlying subject of take can also be understood as some unspecified agent. I believe that these readings of the above sentences do not constitute real promises, but predictions or assurances, like in I promise you that you will be happy again. It seems that we need to posit two homophonous items promise. On the reading on which (21) and (23) do constitute promises, there is an intervening get-sentence, which gets deleted cyclically with the result that (24) need no longer hold.

[3] An objection similar to that I raised against Rosenbaum's minimal distance principle can be raised against (24), namely that there must be a deeper reason why such a constraint should exist. I believe that it serves a purpose similar to the constraints involving the ordering of quantifiers discussed by Lakoff in "On Generative Semantics", namely to make the reconstruction of underlying structures possible, given surface structures and perceptual strategies.

[4] As I pointed out in chapter one, section (E), coreferentiality constraints sometimes hold for verbs that allow a that-complementizer, when no deletion transformation applies. The paradigm I mentioned there is reproduced below:

I confess that I killed John.
*I confess that Mary killed John.

[5] As SUPER EQUI is only collapsed with CEQUI, it becomes a relatively simple matter to formulate PEQUI:



where the feature P-O on the verb stands for "purpose-oriented."

[6] Grinder points to a difficulty here. (46) is derived from (45) through EXTRAPOSITION, and if (46) is to be ruled out through the blocking of SUPER EQUI, EXTRAPOSITION should be cyclic. As there is evidence against the cyclicity of EXTRAPOSITION, it seems we must have recourse to an ad hoc derivational constraint. D. T. Langendoen suggested to me that such a derivational constraint would not be quite so ad hoc, since DOOM MARKING and DOOM DELETION are in fact equivalent to a derivational constraint themselves. Therefore, we might perhaps say that extraposition of a clause around an NP wipes out any DOOM marking in that clause. Also, there are counterexamples to the claim made by (46), e.g.

(i) John said that it proved something to be able to look at himself in the morror that morning.

I shall not attempt to decide the issue, as the situation seems far from clear.

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Subjects and Agents: II*

Gregory Lee

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PREFACE

This article is the text of my dissertation, Subjects and Agents. It is a revision of an earlier paper, also titled "Subjects and Agents," which appeared in Working Papers in Linguistics No. 3. Except for parts of the present Chapters Seven, Eight, and Eleven, the two versions have little material in common. For one thing, in line with an increasingly pessimistic attitude toward formalism, I have deleted most trees, rules, and references to rule orderings.

The two syntacticians on whose work I depend most directly are Barbara Hall Partee and Charles Fillmore. I am defending a proposal of Partee's dissertation (1965)--that in underlying structure, subjects are optional. A suitable reformulation of this proposal in terms of the notion 'agent' presupposes Fillmore's theory of case grammar.

For helpful criticisms of both versions of this paper, I am most indebted to Charles Fillmore, my advisor. (This is not to say that he agrees with me.) I am also very grateful to Gaberell Drachman, David Stampe, Arnold Zwicky, and my wife Pat for many suggestions--substantive and stylistic.

I thank Marlene Deetz for a saving last-minute typing job and my wife for typing a preliminary version.

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CHAPTER ONE

INTRODUCTION

The hypothesis of this study is that in English, agents are just deep subjects. If a noun phrase is the agent of a sentence, then it is the subject of that sentence in underlying structure. Non-agent superficial subjects are secondary; they are introduced into subject position by transformation. An immediate implication of this is that, since some sentences are agentless, there will be underlying sentences with no subjects.

Before I outline the arguments to be presented, the terms 'deep subject' and 'agent' require some discussion. The first of these, 'deep subject,' is to be interpreted within the framework of the transformational-generative theory of syntax. In all versions of this theory, sentences are assigned underlying, or deep structures which undergo a step-wise conversion into superficial (observed) structures. I assume that underlying structures, like superficial structures, are ordered from left to right and consist of sentences, and that underlying sentences look sufficiently like superficial sentences for the term ' deep subject' to be understood in a fashion parallel to 'superficial subject.' In particular, I assume that a deep subject of a sentence will also be the sentence's superficial subject unless moved or deleted by a transformation. These assumptions lead fairly naturally to the following property of deep subjects: a subject of an underlying sentence is a noun phrase which is the initial element of the sentence, and hence precedes other sentence elements such as the verb, direct object, and indirect object. There are problems with the notion 'superficial subject,' (see the discussion in Hall, 1965), and certainly one could define 'deep subject' so that the preceding would not necessarily be a property of deep subjects; nevertheless, the ordering relation is what my arguments will be directed toward. Put in another way, then, the hypothesis is that the agent of a sentence is a noun phrase which is the initial element of the sentence in underlying structure, but that non-agent noun phrases do not occupy this position.

The term 'agent' is drawn from Charles Fillmore's case theory of syntax (see Fillmore, 1966, 1967, 1968, 1969, 1970). This dissertation is an essay in case grammar in that I assume a syntactic description to be incomplete unless it specifies certain relational information about noun phrases. Terms like 'agent', 'instrument', 'experiencer', and 'object' are descriptive of this information, and I use these terms with approximately the sense Fillmore gives them. For reference I quote a set of definitions from Fillmore's "Lexical Entries for Verbs" (1969, p. 77):

> Agent, the instigator of the event.
> Counter-Agent, the force or resistance against which the action is carried out.
> Object, the entity that moves or changes or whose position or existence is in consideration.

Result, the entity that comes into existence as a result of the action.
Instrument, the stimulus or immediate physical cause of an event.
Source, the place to which something is directed.
Experiencer, the entity which receives or accepts or experiences or undergoes the effect of an action (earlier called by me 'Dative').

Earlier, in "The Case for Case" (1968, p. 24), Fillmore defined the agentive case as "the case of the typically animate perceived instigator of the action identified by the verb." Such definitions of agent are intended to characterize the subjects of sentences like 1.1 - 1.4 as agents.

1.1. Harry assassinated the Premier.

1.2. George hugged Elaine.

1.3. John frightened the baby cleverly.

1.4. Mary commanded George to sit down.

The subjects of 1.5 - 1.8, on the other hand, are not agents.

1.5. Harry has long hair.

1.6. Mary contains nothing but sugar and spice.

1.7. Buffalo is in New York.

1.8. Harry thinks that the earth is flat.

In the following two chapters (Two and Three), I will approach the definition of agent through a consideration of the syntactic phenomena that the notion agent is required to describe. The notional definition which appears to me to accord most fully with a coherent set of syntactic properties is the following: an agent of a sentence is any noun phrase whose referent is not presupposed not to have a purpose with respect to the condition or event described by the sentence.

In other words, a non-agent is presupposed not to have a purpose.

The view of agents taken in Chapter Three depends on a particular analysis of pairs of sentences like 1.9 - 1.10.

1.9. John broke the window.
1.10. The window broke.

The appropriate analysis is one in which the difference between 1.9 and 1.10 is characterized in underlying structure just by the presence or absence of the agent John. In the absence of an agent, the window becomes the superficial subject, giving 1.10. This analysis is proposed by Barbara Hall Partee in her 1965 dissertation, and it is elaborated by Fillmore in Fillmore (1966, 1967, 1968). But Partee also mentions another, causative analysis, which she argues against. In the causative analysis, 1.9 is given a complex underlying syntactic structure which corresponds to the superficial sentence 'John caused the window to break' (see Lakoff, 1965). If the causative analysis were correct, the notion agent (viewed syntactically as in Chapter Two) would break down. The difference between 1.9 and 1.10 would no longer be characterizable just by the presence or absence of the agent John. To uphold my claim, I must argue for Partee's position on the question and against the causative analysis. This I do in Chapter Nine.

Aside from being clear about the terms of the hypothesis, it must be shown that the hypothesis is consistent with what is known about English syntax. Or, at least, if there is an inconsistency it must be resolved somehow. With regard to past analyses of particular constructions, there seems to be no problem of consistency. According to widely accepted analyses, the subjects of predicates like seem, grow to are introduced into subject position by transformations; these secondary subjects are never agents. Similarly, passive subjects and secondary subjects of be easy, be hard, etc. are non-agents. On the other hand, many subjects that are commonly regarded as deep subjects are not agents (e.g., subjects of believe, be strong, realize). I have no concrete suggestion as to the source of such non-agent subjects, but it is at least the case that no positive arguments have been made that they are not secondary.

There are two theories, however, according to which all subjects are secondary. In Chapter Four I argue that insofar as non-agents are concerned, these theories are correct, but that the evidence that has been given does not show agents to be secondary.

Now let me outline the five arguments to be given for the hypothesis that agents are just deep subjects. These arguments are all based on constraints and are of the following form: there is a constraint which in certain circumstances has the effect of requiring (excluding) a subject. In the same circumstances, an agent is required (excluded). Consequently, at the level or levels of derivation where the constraint applies, agents and no other noun phrases must be subjects. Since we can trace derivations back to a level at which agents are the only subjects, there is a prima facie case for agents being the only deep subjects.

The first two constraints discussed are the predicate-raising constraint (Chapter Five) and the like-subject requirement (Chapter

Six). Predicate-raising amalgamates the verb of a lower sentence with the verb of a higher sentence; the predicate-raising constraint requires the verbs to be contiguous before this can occur. The effect is to exclude a subject in the lower sentence. Given the hypothesis, the predicate-raising constraint accounts for why there are no objects in superficial structure which are agents.

The like-subject requirement is imposed on the subject of a lower sentence; the subject must be identical to a noun phrase in the embedding sentence. This has the effect of requiring the lower sentence to have a subject. It turns out that when the like-subject requirement applies pre-cyclically, the agreeing subject must be an agent.

The last three constraints confirm the hypothesis only in a restricted domain--that of predicates which may occur in indirect causative constructions (defined in Chapter Nine). The manner-adverb exclusion constraint applies in a way that shows that non-agent subjects of indirect causatives are from manner adverbs, but that agents are not from manner adverbs (Chapter Eight). The adverb-referral constraint shows that non-agent subjects of indirect causatives are from lower clauses, but that agents are not from lower clauses (Chapter Ten). The crossover constraint shows that the non-agent subjects originate to the right of objects and various other noun phrases in the verb phrase, but that agents come from the left of these noun phrases (Chapter Eleven).

By way of conclusion, in Chapter Twelve, I will look briefly at some semantic properties of agents and view the prospects for arriving at syntactic reconstructions of these properties.

CHAPTER TWO

AGENTIVENESS

In this chapter and the following one, I attempt to come to grips with the notion of agent. For the most part, I have cast this attempt in the form of an inductive definition. I do not want this form to be misleading, so I will state at the outset that the steps in the definition are sufficiently vague to preclude the notion of agent from emerging in a very well-defined way. The reason for this "pseudo-induction" is that it makes clear the range of factual data that support the theoretical term 'agent'. The point is to show the necessity for talking about agents in describing certain syntactic phenomena.

This chapter proposes a definition of a sentence property called agentiveness, which is taken to be a property of underlying structures.

There is a certain class of sentence contexts, which we may call 'pro-agentive' contexts, in which some sentences may appear but others must not. It makes sense to group these contexts together under the single label 'pro-agentive', since by-and-large they accept the same set of sentences and reject the same set. Or at least in cases where a sentence is accepted in one context but rejected in another, this is a peculiarity which one may hope has an independent account. Examples of pro-agentive contexts along with instances of sentences they accept and reject are:

I.A. The sentence is the object complement of command, or the infinitival object complement of persuade.

2.1. John commanded Mary to leave.

2.2. *John commanded Mary to have red hair.

I.B. The sentence is the object complement of having.

2.3. John was having everyone leave.

2.4. *John was having everyone be tall.

I.C. An instrument phrase is added to the sentence.

2.5. John opened the door with some instrument.

2.6. *John was tall with some instrument.

I.D. Cleverly, avidly, enthusiastically or on purpose is added to the sentence.

2.7. John opened the door cleverly.

2.8. *John was tall cleverly.

I.E. In order to...is added to the sentence.

2.9. John opened the door in order to amaze his grandfather.

2.10. *John was tall in order to amaze his grandfather.

I.F. A nominalization of the sentence occurs with by in a higher sentence which is in a pro-agentive context.

2.11. John cleverly frightened the baby by opening the door.

2.12. *John cleverly frightened the baby by being tall.

These pro-agentive contexts are compatible, for the most part. That is, a sentence may occur in several of the contexts simultaneously.

There are, on the other hand, anti-agentive contexts which accept sentences rejected by pro-agentive contexts but reject some sentences accepted by pro-agentive contexts. Examples are:

II.A. The sentence is the complement of such intransitive verbs as strike as, prove to, turn out to (except in the sense of 'turn out in order to'), grow to. In these cases the subject of the complement becomes the main subject by subject-raising, while the verb phrase comes after the main verb.

2.13. John strikes me as being tall.

2.14. *John strikes me as assassinating the Premier.

II.B. The sentence is the object complement of prove or believe.

2.15. They proved John to have red hair.

2.16. *They proved John to assassinate the Premier.

II.C. The sentence is in the aorist present, and no special interpretation as a title, headline, or primer English is required.

2.17. John has red hair.

2.18. John eats the fish. (not aorist, but rather habitual or repeated action.)

II.D. If the sentence is active, its subject is inanimate.

II.E. The sentence is in the perfect (have+en) or the progressive (be+ing).

I realize that it is odd to call C, D, and E "contexts"; the word is being extended to include things internal to sentences by analogy to the way in which 'environment' in phonological rules is extended to include features of a segment that is changed by the rule. The contexts I am talking about can be regarded as tests for whether a sentence is agentive.

Pro-agentive and anti-agentive contexts divide sentences in three classes, according to whether the sentences are accepted in one or both sets of contexts. Accordingly we will call a sentence 'agentive' (accepted in pro-agentive contexts, but rejected in anti-agentive contexts), 'non-agentive' (accepted in anti-agentive contexts, but rejected in pro-agentive contexts), or 'neutral' (accepted in both sorts of contexts). Examples follow.

Agentive:

2.19. John assassinated the Premier.

2.20. Mary ate twenty macaroons.

2.21. John commanded someone to leave.

Non-agentive:

2.22. John has red hair.

2.23. Mary seems sick.

2.24. George decayed.

Neutral:

2.25. John frightened the baby.

2.26. Harry proved something.

2.27. The Russian spy broke the window.

In turn, verbs can be classified as to whether the sentences in which they are the main verb must be agentive (the verb is 'pro-agentive'), non-agentive (the verb is 'anti-agentive'), or may be agentive, non-agentive, or neutral (the verb is 'neutral'). The main verbs of the above three sorts of sentences will serve as examples.

I propose that there is a sentence property of agentiveness which accounts for these contextual restrictions. Agentive sentences have this property and non-agentive sentences do not. Neutral sentences may either have the property or lack it; that is, neutral sentences are ambiguous. Let us look at two questions that could be raised in objection to such a scheme.

Is it possible to ascribe the pro- and anti-agentive restriction to the presence or absence of just one property of sentences? If there are not broad classes of sentences which are rejected in both pro-agentive and anti-agentive contexts, it would be reasonable to suppose that there was only one property involved. But sentences with instrumental subjects (e.g., 'The hammer broke the window') are rejected in both contexts, so this is a good objection. I choose to take the pro-agentive contexts as central in the definition of agentiveness; a sentence is non-agentive if it is rejected in a pro-agentive context. Anti-agentive contexts must require some properties which are incompatible with agentiveness.

The second question is whether it is fair to describe neutral sentences as ambiguous. The first point to be made is that such sentences are felt to be ambiguous; 'John frightened the baby' is non-agentive if it is understood that it was something about John that frightened the baby, but is agentive if he did it on purpose. It may require some imagination to get a non-agentive reading in the instances where the human subject must be thought of as an instrument, as in 'The Russian broke the window.' This example is from Barbara Hall

Partee's dissertation (Hall, 1965, p. 31), and the situation is that James Bond hurls the Russian, who has nothing to say about it.

Another point, a more "syntactic" one, is that no neutral sentence (nor any other sentence) can occur in a pro-agentive and an anti-agentive context simultaneously. Thus 2.28 and 2.29 are unacceptable.

2.28. *John turned out to frighten the baby cleverly.

2.29. *They believed John to prove it in order to be elected.

This is expected, given the ambiguity of neutral sentences, since a property cannot be demanded and excluded at the same time. If it were the case that the property of agentiveness was irrelevant in the case of neutral sentences, or that neutral sentences were simply vague with respect to an agentive or non-agentive interpretation, then the incompatibility of pro- and anti-agentive contexts would be peculiar and would require a special account. Of course the unacceptability of sentences like 2.28 and 2.29 does not in itself show that we are dealing with an ambiguity and not just vagueness.

Since the contextual restrictions being discussed have to do primarily with the presence or absence of the sentence property of agentiveness, the pro- and anti-agentive contexts can be looked upon as tests for whether or not a sentence is agentive. In some cases, of course, one may only test a given reading of a sentence, or, to put it another way, one tests for whether agentiveness can be imposed on a sentence. This procedure assumes that it is fair to identify a sentence in the context with at least one reading of the sentence in isolation or in a different context. The choice of the main verb of a sentence may be thought of as a context (a pro-agentive verb requires an agentive sentence), but this is difficult to use as a test--when the main verb of a sentence is changed, the whole structure of the sentence is generally changed.

In this regard, it should be pointed out that the pro-agentive contexts listed above are really of two sorts, external and internal. The external ones are relevant for active sentences only, whereas the internal ones are good whether or not the passive transformation has applied. 'The oatmeal was eaten by George' is rejected in context I.A. and I.F. (cf. 2.30 and 2.31 below) but is shown to be agentive by being accepted in other pro-agentive contexts (2.32) and rejected in anti-agentive contexts (2.33).

2.30. *Harry persuaded the oatmeal to be eaten by George.

2.31. *John cleverly frightened the baby by the oatmeal's being eaten by George.

2.32. The oatmeal was cleverly eaten by George.

2.33. *The oatmeal struck me as being eaten by George.

Context I.B. is "internal" in this sense, because it is insensitive to the passive transformation.

2.34. Harry was having George eat the oatmeal.

2.35. Harry was having the oatmeal eaten by George.

Naturally some contexts are neither pro-agentive nor anti-agentive, but are neutral with respect to agentiveness (neutral verbs such as frighten have already been mentioned). Among neutral contexts are some of those discussed by George Lakoff in his article "Stative

Adjectives and Verbs in English" (1966). Several of the pro-agentive contexts previously listed are drawn from Lakoff's article. Lakoff claimed that such contexts required that a sentence's main verb or adjective be non-stative. Stative verbs are not allowed in such contexts. My immediate concern is to show that the property agentive is distinct from the property non-stative, if the term non-stative is applied to sentences, or that the classifications pro-agentive and non-stative refer to different sets of verbs.

To take the second matter first, note that there are many verbs which appear in the progressive or with manner adverbs (which in some instances may be subcategorized with respect to the subject of the sentence), which are nonetheless anti-agentive. A list of such verbs is given in 2.36.

2.36. come to
grow to
turn out to
manage to

rain
hail
snow
cloud up

glimmer
incandesce
shimmer
blister
glitter
blossom
dawn
fester
feel sick
loom

worry (not in the sense 'harass')
give a tendency to
fall into a trance

2.37 and 2.38 are instances of the co-occurrence with manner adverbs and the progressive.

2.37. John was rapidly proving to be the best student.

2.38. The mountains were looming greyly in the distance.

Stative verbs (such as *seem*, *contain*, *be engrossed in*) cannot occur in the progressive or with manner adverbs, and so the verbs in 2.36 are non-stative. It is clear, then, that Lakoff's non-stative contexts fall into two distinct sets with regard to verb classification. Some, the pro-agentive contexts, reject anti-agentive main verbs, but others, contexts neutral with regard to agentivity, allow anti-agentive main verbs. It may well be, however, that stative verbs are always anti-agentive.

When one considers sentences, the matter is even clearer, since active sentences with inanimate subjects are non-agentive, but it is easy to find instances of such sentences in the progressive or with manner adverbs ('The hammer was breaking the window'). Moreover, the addition of the progressive be+ing does not disambiguate sentences like 'John frightened the baby', 'John was frightening the baby' may be agentive or non-agentive.

The term 'agent', to be introduced in the following chapter, depends on the notion agentivity. What I hope to have shown so far is that the agentivity of a sentence must be known in order to describe properly a number of syntactic restrictions.

CHAPTER THREE

AGENTS

The purpose of this chapter is to show that the sentence property agentiveness can profitably be attributed to the appearance of a particular noun phrase in the sentence, namely the 'agent.' A sentence is agentive if it has an agent; otherwise the sentence is non-agentive.

In trying to be specific about what makes an agentive sentence agentive, it makes sense to look first at sentence internal elements whose choice may determine whether a sentence is agentive. Although there are many logical possibilities, the main verb and the subject are basic elements of the sentence and can both be anti-agentive. Choosing an anti-agentive verb makes a sentence non-agentive, and choosing an inanimate subject does the same (in the case of a passive, I am speaking of the original subject). So a plausible initial assumption is that the determinant of agentiveness is something about the verb or the subject or, perhaps, both. Here I shall argue that the crucial factor is something about the subject. The reasoning is just a restatement of a line of argument followed by Fillmore in several articles on case grammar.

A sentence element is said to be optional if its presence or absence makes no crucial difference in the way the rest of the sentence is understood. For instance, in 3.1 and 3.2 yesterday is optional.

3.1. John left.

3.2. John left yesterday.

There are various ways of stating the relationship of 3.1 and 3.2. One could say that 3.1 says no more than 3.2, or that 3.2 says what 3.1 says (and more), or that the roles that *John* and *left* play are the same in 3.1 and 3.2 (to put it in Fillmorean terms), or that *yesterday* supplies additional information. But it hardly needs illustration that a sentence element is not optional in this sense in all cases where two sentences differ merely by the presence or absence of the element. Compare 3.3 with 3.4 and 3.5 with 3.6.

3.3. They watch the magazines.

3.4. Watch the magazines.

3.5. John kicked his left foot against the wall.

3.6. John kicked his left foot.

The straightforward relationship of 3.1 and 3.2 should be reflected in the underlying structures of these sentences; the parts of the structures that give rise to *John left* should be the same.

There are many instances where the noun phrase that is important in determining the agentiveness of a sentence is optional. Compare 3.7 and 3.8.

3.7. The window broke.

3.8. John broke the window.

John here is optional with respect to 3.7 and 3.8 in the same sense as *yesterday* is optional with respect to 3.1 and 3.2; 3.8 says what 3.7 says and more. The importance of agentive optionality is the fact that the sentence is agentive if and only if the crucial noun phrase (here, John) is present. The crucial noun phrase that is the determinant of agentiveness is the 'agent'.

Partee's examples, which I give as 3.9 and 3.10, show that the position and lexical content of a noun phrase do not infallibly determine whether it is an agent.

3.9. The Russian broke the window.

3.10. James Bond broke the window with the Russian (by hurling him through it). (Hall, 1965, p. 31)

3.9 can be interpreted agentively, but in this case its meaning is not included in that of 3.10. Thus it is the appearance of a noun phrase with a certain function (that of agent) which determines agentiveness.

One further point to be made here is that an agent is a noun phrase, and not just the specification of a noun phrase. Compare 3.11 and 3.12.

3.11. Someone broke the window.

3.12. John broke the window.

John could be thought of as optional, since 3.12 says what 3.11 says and more. But the optionality consists in the specification of the subject noun phrase, and there is thus no difference in agentiveness between 3.11 and 3.12.

Both 3.13 and 3.14 are agentive, and so to maintain the connection between agentiveness and the presence of an agent, we must say that in the derivation of 3.13 an agent has been deleted. That is, 3.13 is from 3.15.

3.13. The window was broken on purpose.

3.14. John broke the window on purpose.

3.15. The window was broken by someone on purpose.

From tracing agentiveness back to the appearance of an optional noun phrase, the agent, it seems natural to proceed to attribute agentiveness to the presence of an agent in other cases, too. An agentive sentence like 3.16, we can say, has an agent, even though there is no obvious corresponding agentless sentence. That is, in 3.16 the agent is not optional, but obligatory.

3.16. John assassinated the Premier.

By a similar extension, a non-agentive sentence lacks an agent, whether or not the agent is optional.

If an agent is optional, then in its absence some other noun phrase must fill in for it, since the sentence must be supplied with a subject. There are many particularities and peculiar restrictions involved in determining what noun phrase may fill in for a missing agent; nevertheless a few generalizations may be made. These are:

A. The noun phrase that fills in may have been a constituent of the verb phrase, or part of such a constituent.

B. If the fill-in is part of a constituent, it is possible for the fill-in to be represented twice in the non-agentive sentence--once in subject position and once in its original position.

C. There may be several noun phrases that can be chosen to fill in for a missing agent, giving rise to multiple paraphrases.

D. If the fill-in is a genitive, there is a presupposition of attachment or a part-to-whole relationship between the referent of the genitive and the referent of the noun phrase it modifies.

E. In case the noun phrase that fills in is animate, the sentence may be functionally ambiguous as between an agentive and a non-agentive interpretation.

F. Non-agentives with fill-in subjects are often rejected in anti-agentive as well as pro-agentive contexts.

To illustrate A - F, consider first the paradigm of sentences 3.17 - 3.20.

3.17. John hit the window with the tip of the business end of the hammer.

3.18. The tip of the business end of the hammer hit the window.

3.19. The business end of the hammer hit the window with $\left\{\begin{matrix}\text{its tip.}\\ \text{the tip.}\end{matrix}\right\}$

3.20. The hammer hit the window with the tip of $\left\{\begin{matrix}\text{its business end.}\\ \text{the business end.}\end{matrix}\right\}$

3.17 is the agentive member of the paradigm. In 3.18, the fill-in is the whole instrument phrase; with is deleted. 3.19 and 3.20 have subjects derived from parts of the instrument phrase, these parts being optionally represented in their original positions by pronouns. 3.18 - 3.20 are paraphrases.

As Cantrall points out in his dissertation (Cantrall, 1969), it is possible to fill in with the genitive part of an instrumental in a case like 3.21 only if it is presupposed that the fender is attached to the car at the time of the action.

3.21. The car's left front fender hit the building.

3.22. The car hit the building with its left front fender.

If the fender flew off of the car and then hit the building, 3.21 would be appropriate, but not 3.22.

The ambiguity between instrument and agent was illustrated by Partee's example about the Russian (3.9).

3.17 - 3.20 are rejected in most of the anti-agentive contexts listed in Chapter Two. E.g.,

3.23. The hammer hits the window. (not an aorist present)

3.24. *The hammer proved to hit the window.

Although 3.24 is unacceptable, a sentence with an instrumental subject may sometimes be a complement to prove to if the sentence expresses repeated action or a law or generalization. However in this respect, such sentences are not different from sentences with agents.

As Fillmore notes in "The Grammar of Hitting and Breaking" (1967), surface contact verbs typically give paradigms like 3.17 - 3.20. In that article he also points out that change-of-state verbs may have subjects derived from direct objects as well as from instruments. A genitive within a direct object may be chosen as secondary subject only if it is animate; consequently for sentences with such derivations there are always corresponding agentives with the same superficial form.

3.25. John broke his leg. (agentive)

3.26. John's leg broke.

3.27. John broke his leg. (non-agentive)

The presupposition of attachment holds in 3.27 just as the previous example 3.22. Thus, in 3.28, where attachment is most unlikely, there is only an agentive reading.

3.28. John broke his mother's leg.

This presupposition along with the restriction to animate genitives makes it impossible to have multiple paraphrases by various choices of a genitive to fill in the subject position. Moreover, we do not get agentive/non-agentive ambiguities other than those of the type 3.25 - 3.27 where a genitive fills in, because when the whole object fills in there is no longer a superficial object. But agentive sentences with change-of-state verbs must have superficial objects. Thus 3.29 is unambiguously non-agentive.

3.29. George melted in the heat.

Sentences with the verb stop provide paradigms similar to those just considered.

3.30. John stopped Mary's decaying.

3.31. Mary's decaying stopped.

3.32. Mary stopped decaying.

3.30 is the agentive member. In 3.31 the secondary subject is from the sentential object of stop, while in 3.32 only part of the sentential object fills in, namely the genitive that comes from the subject of the nominalized sentence. Apparently a subjective genitive is the only part of the object that can be made into a subject. In my own variety of English, the subjective genitive cannot become the subject of stop and be represented in its original position as well. Sentences like 3.33 are about as odd as sentences in which an inanimate genitive from the object of a change-of-state verb has been made subject--like 3.34.

3.33. ?Mary stopped her decaying.

3.34. ?The picture broke its frame.

Given the restriction to fill-ins from subjective genitives the only way multiple paraphrases could arise in sentences with stop is by taking a genitive coming from a sentence subject of a nominalization which was itself the subject of stop's sentential object. That is, the genitive would have to come from two or more sentences down the tree. Apparently this does not occur.

There is an agentive/non-agentive ambiguity in the stop paradigm; 3.35 displays this.

3.35. John stopped running across the pavement.

The agentive sense here is obvious. The non-agentive interpretation is the gory one, in which 3.35 is interpreted in a fashion parallel to 3.36.

3.36. The paint stopped running across the pavement.

The non-agentive sense of 3.35 arises in the way already discussed. The agentive sense is from a derivation in which the subject of stop's sentential object is an agent, and is identical to the agent subject of stop. In this circumstance, the subject of the lower sentence is deleted under identity, resulting in a surface string identical with that of the non-agentive derivation.

There are several peculiarities with stop. 3.37 has a meaning similar to that of 3.30, except that it could be used when Mary had not yet begun to decay, unlike 3.30.

3.37. John stopped Mary from decaying.

3.38 is similar to 3.35 in the agentive sense, except 3.38 presupposes that John (agent) had been running across the pavement repeatedly.

3.38. John stopped his running across the pavement.

The verb begin, discussed by Perlmutter in his dissertation (1968), is similar to stop (and start), except that it is a "like-subject" verb. That is, if begin has an agent subject, then this subject and the subject of its sentential object must be identical. Compare 3.39 - 3.43 with 3.30 - 3.32, 3.35, 3.38.

3.39. *John began Mary's decaying. (violates the like-subject requirement)

3.40. Mary's decaying began. (the sentential object has become the subject)

3.41. Mary began decaying. (part of the object has become the subject)

3.42. John began running across the pavement. (ambiguous)

3.43. John began his running across the pavement. (he ran repeatedly)

Perlmutter argues that begin may take either one or two complements in underlying structure--either a sentential complement or a simple noun phrase and a sentential complement. If in the cases in which begin is shown to have two underlying complements, the begin sentences are agentive, then Perlmutter's arguments substantiate my contention that begin takes an optional agent. It seems to me that these cases do indeed require agentive begin sentences. Foremost among Perlmutter's arguments is one that proceeds from the like-subject constraint, discussion of which I defer until later (Chapter Six).

The last case of optional agents to be considered here is that of have-sentences (cf. Lee, 1967). Compare 3.44 - 3.48 with the previous paradigms.

3.44. John had a dent in the lower corner of the right front fender of Mary's car.

3.45. Mary had a dent in the lower corner of the right front fender of her car.

3.46. Mary's car had a dent in the lower corner of $\left\{\begin{matrix}\text{its}\\ \text{the}\end{matrix}\right\}$ right front fender.

3.47. The right front fender of Mary's car had a dent in $\left\{\begin{matrix}\text{its}\\ \text{the}\end{matrix}\right\}$ lower corner.

3.48. The lower corner of the right front fender of Mary's car had a dent (in it).

3.44 is agentive. 3.45 is ambiguous, but in its non-agentive sense is a paraphrase of 3.46 - 3.48. The presupposition of attachment is of significance in 3.46, which would not be appropriate if the fender had been removed. However, as the non-agentive interpretation of 3.45 shows, the presupposition is not necessary in the case of animate genitives. But even here the presupposition is important, because if it does not hold, the animate genitive must be represented in its original position. So 3.49 and 3.50 are paraphrases, but 3.51 must be agentive.

3.49. Mary had a scratch on her arm. (non-agentive)

3.50. Mary had a scratch on the arm. (non-agentive)

3.51. Mary had a dent in the car.

The topic of optional agents will be taken up again in Chapter Eight.

The general line of reasoning in this chapter has been that a certain noun phrase is optional and that its presence or absence goes along with agentiveness or the lack of it; consequently it is fair to refer the property of agentiveness to this noun phrase.

A sentence is agentive if and only if it has an agent.

CHAPTER FOUR

DEEP SUBJECTS

There is a prima facie case for agents being deep subjects. If a sentence has an agent, then either the agent is the surface subject of the sentence or it has been removed from subject position by a transformation. The agent can be removed by various deletion transformations, or by passive or subject-raising ('John is likely to kill himself'). Thus unless one can successfully challenge the customary formulation of these transformations as affecting subjects, one must find that agents always come from subjects. Since we assume that underlying structure is like surface structure unless there is evidence to the contrary, we can suppose that all agents are deep subjects until faced with such evidence.

But it has been argued recently by Fillmore and McCawley that there are no deep subjects. If this is so, agents obviously cannot be deep subjects. In this chapter I will try to show that Fillmore's and McCawley's arguments, far from showing what they purport to show, for the most part actually confirm my own conclusion that only agents are deep subjects.

One of Fillmore's arguments (condensed to such an extent that it loses much of its force) goes like this (see Fillmore, 1966 and 1968, p. 17 ff.). There are roles, or deep cases, of noun phrases that are of semantic and syntactic significance (agent, instrument, experiencer, etc.). Hence these roles should be represented in underlying structures. At least it should be true that if two noun phrases play different roles, they should start out looking different. If the surface subjects which are commonly supposed also to be deep subjects were really deep subjects, the requirement of different representations for different roles would not be met. This is because surface subjects may have a number of different roles. Consequently subjecthood cannot be a category of underlying structure, since it has no unique semantic significance.

I agree completely with Fillmore's assumptions and reasoning as far as the last sentence. My proposal of course is that subjecthood does have a unique semantic significance, namely that of agent. Given the correctness of the argument save for the conclusion that there are no deep subjects, it follows that if agents can be shown to be deep subjects, then noun phrases in roles other than that of agent must not be deep subjects.

The second Fillmorean argument (although he does not actually give it as an argument) is one that I draw from his analysis of passives (see Fillmore, 1968, p. 37 ff.). Consider the paradigms that were discussed in Chapter Three, such as 4.1 and 4.2.

4.1. John hit the window with the hammer.

4.2. The hammer hit the window.

The hammer plays the same role in 4.1 and 4.2, and so we would like to say that this noun phrase starts out in the same position in the derivation of 4.2 as it does in the derivation of 4.1. Fillmore's proposal is that, in the absence of an agent in 4.2, the instrument is moved to the front. We see a comparable situation in the paradigm 4.3 - 4.4.

4.3. The fish was eaten by John.

4.4. John ate the fish.

John plays the same role in both sentences; we know that noun phrases can be moved into subject position (and prepositions eliminated) from analyzing situations involving optional agents; consequently in 4.4 John must be a secondary subject created by moving a by-phrase to the front.

The reasoning here, although obviously not probative, is plausible, at least at first sight. There are, I think, two good reasons for dis-believing the conclusion that agents are secondary subjects. The first is that nothing is gained in this reanalysis of the passive by way of giving a unique representation to a role. The usual formulation of the passive as affecting a subject will give John the same position in the underlying structures of 4.3 and 4.4, since 4.3 and 4.4 will have the same underlying structure. Furthermore, the reasoning of the preceding argument that subjecthood is not a deep category would show that the passive by-phrase is not a deep category, either. The term 'agent-phrase' often applied to the passive by-phrase is a misnomer, since the by-phrase need not be an agent. Consider 4.5 - 4.10 where the noun phrase after by expresses various roles.

4.5. Mary was believed by John to be pregnant. (experiencer)

4.6. The thief was seen by John. (experiencer)

4.7. Ohio is bounded by Lake Erie on the north. (location)

4.8. Mary was annoyed by John's eating the fish. (object?)

4.9. The window was broken by the hammer. (instrument)

4.10. The letter was received by John. (patient?)

Notice the contrast with the optional agent examples, where one must refer to the role of the noun phrase to determine whether it can be made into a subject. The correspondence between subjects and passive *by*-phrases seems to be independent of semantic role.

The second point has to do with Fillmore's special rule that tells what preposition is to be used with an instrument (see Fillmore, 1968, p. 32). Compare 4.11 and 4.12.

4.11. The window was broken with the hammer.

4.12. The window was broken by the hammer.

Fillmore claims that an agent is notionally present in 4.11, but not in 4.12 (see Fillmore, 1966, p. 22; and also Hall, 1965, pp. 25-26). I agree with this observation (notice that *on purpose* can be added to 4.11 but not to 4.12). He then gives the following rule: if there is an agent present, the instrumental preposition is *with*, otherwise it is *by*. With the usual formulation of the passive transformation, the proviso that the preposition is *by* if there is no agent is unnecessary. The *by* is supplied by the passive transformation. The absence of an agent is predicted from the absence of an agent in 4.13, which in turn follows from the fact that an instrument becomes subject only in the absence of an agent.

4.13. The hammer broke the window.

Moreover, Fillmore's treatment of the passive would complicate many of the rules that determine what preposition is to be used with a given role, as 4.5 - 4.10 demonstrate.

There is another argument that agents are not deep subjects that is not so easy to deal with. Fillmore maintains that there is a 'subject-choice hierarchy' which determines what noun phrases may be made into subjects. For example, if a sentence has both an instrument and an object, the instrument becomes the subject (in the absence of any special mark on the verb); but if the sentence has only an object, this becomes the subject. Looking at matters in this way, one would say that the prima facie case for agents being deep subjects, spoken of at the beginning of this chapter, is merely a special instance of the subject-choice hierarchy--an agent is the first choice for a subject. But this reasoning is again only plausible. It could well be that there is a subject-choice hierarchy in which agents do not participate. I would prefer to look at it in the following way: if there is a subject-choice hierarchy, one would like to account for it on independent grounds. Showing that agents are deep subjects is a first step in providing an independent account.

Let us now take up McCawley's arguments (from his paper "English as a VSO Language", 1970). McCawley does not actually argue that there are no underlying subjects; rather he wants to show that in underlying structure (and throughout the cycle) verbs precede their subjects. However, if the term 'subject' when applied to underlying structures, is taken to mean what it does when applied to surface structures, then McCawley's underlying structures must be said to have no subjects. For example, McCawley would derive 4.14 from 4.15 (or rather a structure equivalent to 4.15 with respect to the matters under discussion).

4.14. Max kissed Sheila.

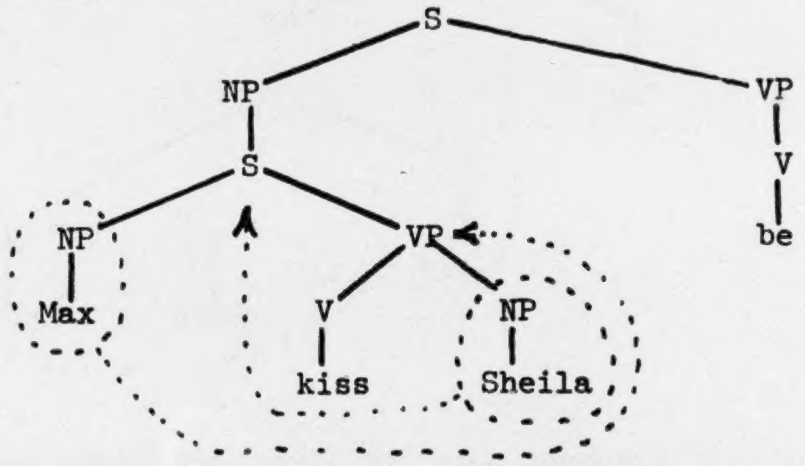
4.15. $_{S}[$kiss Max Sheila$]_{S}$

I take a subject to be a noun phrase that comes before the verb and is in construction with the verb plus the other constituents of the sentence (the verb phrase). In 4.15, although *Max* is to become a subject, *Max* is not a subject in the ordinary sense.

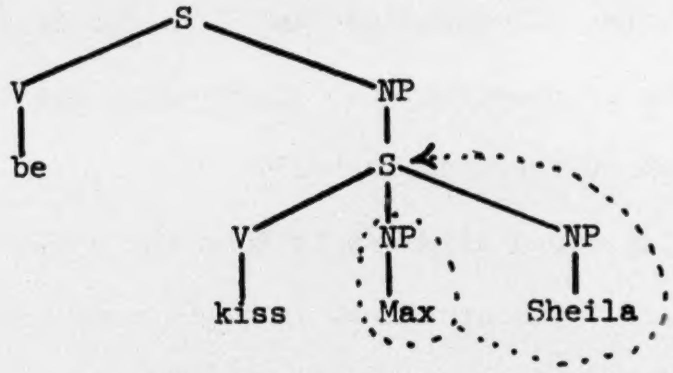
McCawley gives seven arguments that the verb comes first in a sentence. In deciding the significance of these arguments for the hypothesis that agents are the only deep subjects, it is important to realize that under the hypothesis verbs will come first in their sentences unless there is an agent. I believe that McCawley's arguments are irrelevant for deciding between the two views that there are no deep subjects and that the only deep subjects are agents.

The first argument is that the passive transformation can be simplified to perform just one operation if verbs are first. An assumption, which I do not really believe but will accept for the moment, is that the passive *be* is not added by transformation but is present in the underlying structures of passives. I reproduce two of McCawley's diagrams as 4.16 and 4.17; these give two underlying structures for 'Sheila was kissed by Max,' and indicate by dotted lines what the passive transformation does.

4.16.



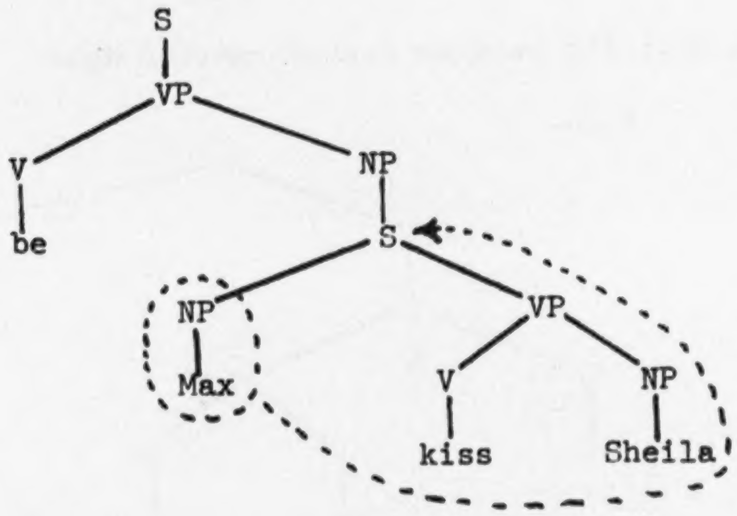
4.17.



4.16 assumes that verbs are always second, while 4.17 assumes that verbs are first. Under the first assumption, the passive transformation must perform two operations, but under the second accumption it need perform only one. Hence putting verbs first simplifies the passive. (In 4.17, Sheila would later become the derived subject by McCawley's 'V-NP inversion' transformation, which would be required also in non-passive derivations.)

Now under the hypothesis that agents are the only deep subjects, one can have an analysis in which passive involves only one operation. 4.18 indicates how this might be done.

4.18.



Consequently McCawley's argument does not show that "even agents" are not deep subjects. I emphasize that I do not believe 4.18 to represent a good analysis of passives, but would point out this analysis is no worse than that represented in 4.17.

McCawley's second argument is that the statement of _there_-insertion is simplified if verbs are first in their sentences. The _there_ of sentences like 4.19 is supplied by _there_-insertion.

4.19. There is a unicorn in the garden.

However, _there_-insertion cannot apply to sentences with agents:

4.20. *There were some men broke the window.

4.21. *There was a boy careful to do it right.

So _there_-insertion can be simplified equally well if agents are subjects at the time at which it applies; representing agents as deep subjects may even help to account for the non-applicability in cases like 4.20 - 4.21.

The third, fourth and fifth arguments concern three transformations that transfer material from embedded sentences to the embedding sentences. These transformations are subject-raising, negative-raising and predicate-raising. The point is that the source sentence can be either a sentential subject or a sentential object (accepting the superficial evidence that all sentences start with subjects) so that "to formulate any of these three transformations would require great ingenuity in the manipulation of symbols, since either the thing being extracted from the embedded sentence would have to move to the right when extracted from a subject complement and to the left when extracted from an object complement (this is the case with negative-raising and predicate-raising), or it would be moved over different things depending on whether it is extracted from a subject complement or an object-complement." (p. 296). We get around these awkwardnesses very nicely, though, if the sentence complements start out to the right of the verb regardless of whether they are destined to become subjects or objects.

These three arguments are most persuasive in themselves, but of course they don't show that agents come at the right of the verb, since sentential complements are never agents.

The last two arguments are about the placement of only and even (when they apply to whole sentences) and conjunctions. If only, even and conjunctions are considered to be verbs, their correct position is predicted under the verb-first hypothesis. I refer to McCawley's article for details. The point I wish to make here is that even if one does consider these items to be verbs, it is difficult to imagine that they could take agents. Again, then, there is no evidence that agents are ever to the right of their verbs.

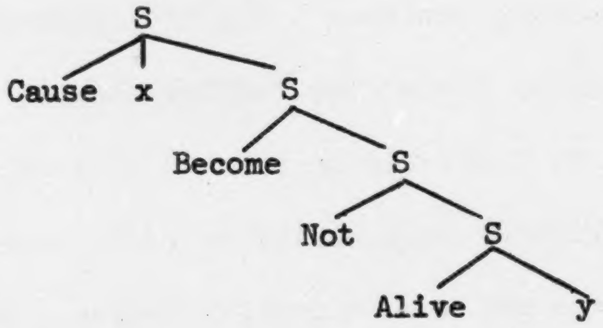
If they are correct, McCawley's arguments show that in certain cases superficial non-agent subjects are not deep subjects. This confirms my own view that only agents are deep subjects. There is a further confirmation in the fact that, so far as I know, there are no arguments along the lines of McCawley's to show that agents must come after their verbs.

CHAPTER FIVE

PREDICATE-RAISING

Consider McCawley's proposed derivation of sentences with the verb kill (McCawley, 1970, p. 295):

→ 5.1.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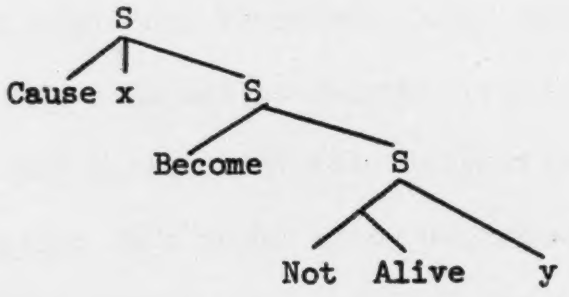
→ 5.2.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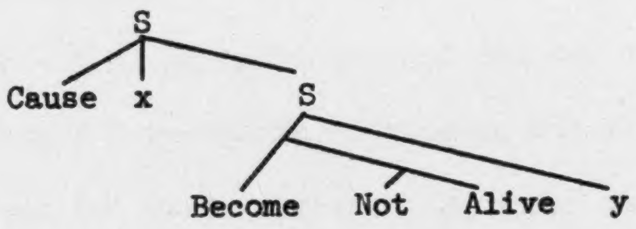
→ 5.3.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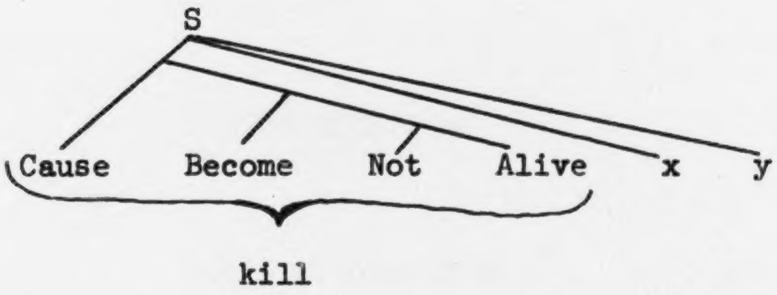
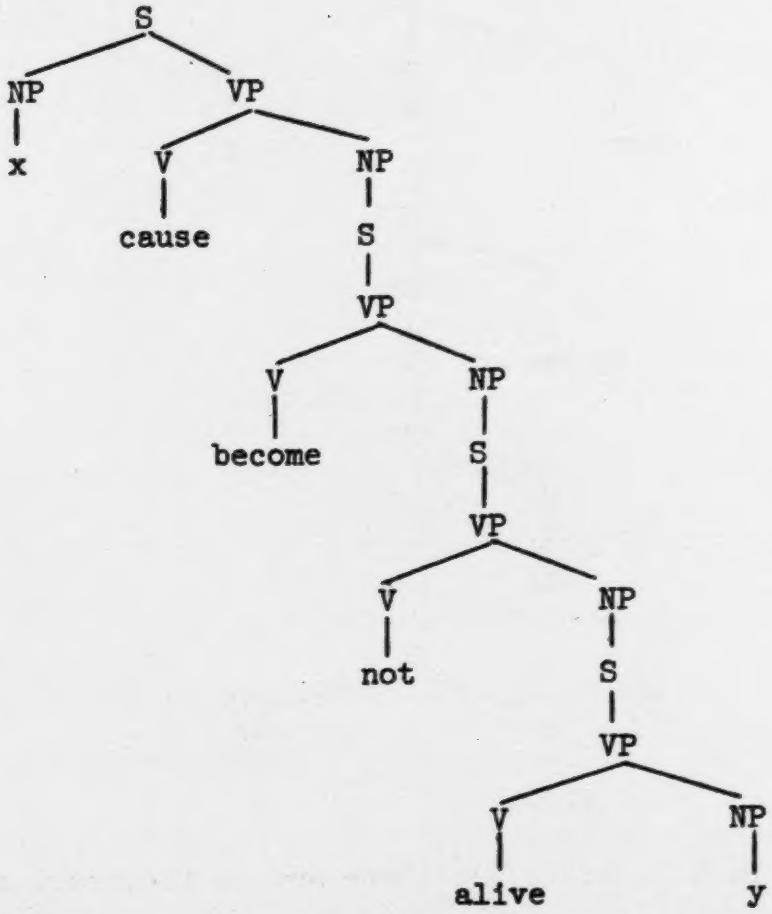
→ 5.4.



The underlying structure is 5.1. Successive applications of predicate-raising convert 5.1 to 5.2, 5.2 to 5.3, and 5.3 to 5.4. Predicate-raising is thus the amalgamation of a verb in a complement with the verb of the embedding sentence. The transformation applies before the insertion of lexical items; the further change, Cause-Become-Not-Alive → kill, is indicated in 5.4. I will argue in Chapter Nine that not all sentences with causative verbs have derivations like this and that kill does not have a complex source. Let us assume for the time being, however, that McCawley's theory is essentially correct, and that kill and other causative verbs come from Cause (an abstract predicate with some properties of the word cause) plus some lower verbs. Predicate-raising will then play a part in the derivation of sentences with causative verbs other than cause or its synonyms.

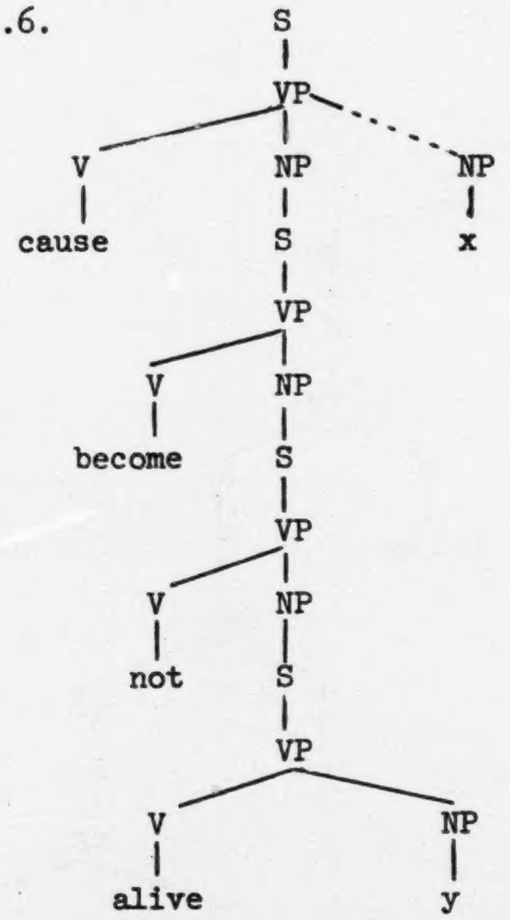
Notice first that in the derivation 5.1 - 5.4 there are no elements intervening between the verbs that are amalgamated by predicate-raising except for the last application (5.3 - 5.4). Consider then how we would modify the underlying structure 5.1 under the hypothesis that agents are deep subjects. Assuming that 'x' represents an agent and making slightly different assumptions about the appearance of underlying structures, we arrive at 5.5. In 5.5 there are no elements intervening between any two of the verbs that are to be amalgamated by predicate-raising.

5.5.



On the other hand, if 'x' is not an agent, it would originate from somewhere after cause. The only question we need ask here is whether the source of a non-agent 'x' would be before or after cause's complement sentence (whose main verb in this example is become). Since in surface structure no noun phrase can come between cause and its sentential object, it is reasonable to assume that 'x' would come after the sentential object in underlying structure. If this is so, the tree corresponding to 5.5 with 'x' represented as a non-agent would be 5.6.

5.6.



Just as in 5.5, so in 5.6 there are no intervening elements between cause and become, become and not, or not and alive.

The reformulation of the underlying structures of causative sentences, exemplified in 5.5 - 5.6, makes it possible to propose a constraint on predicate-raising. The constraint I propose is that predicate-raising cannot move a verb across an intervening element. That is, the verbs amalgamated by predicate-raising must be contiguous.

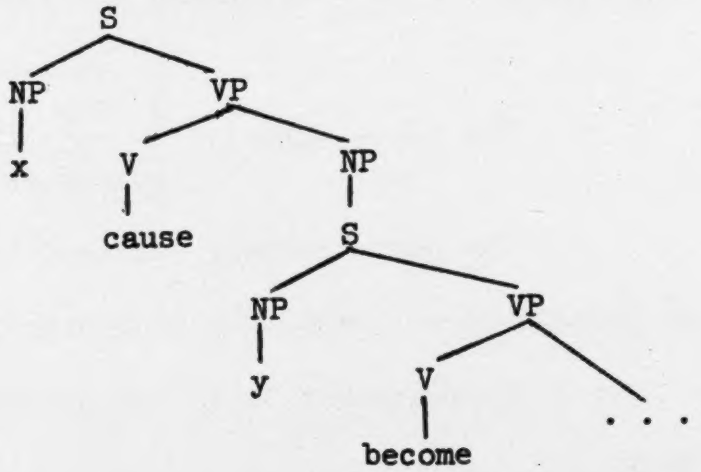
We have seen that the hypothesis that agents are simply deep subjects requires an underlying structure for a sentence with kill in which the noun phrase to become the superficial subject does not intervene between cause and become. But the hypothesis predicts that there will be one situation in which cause and become are separated by a noun phrase in underlying structure--viz., when become takes an agent. The superficial verb become can take an agent, as is shown by 5.7 - 5.8.

5.7. Harry told Mary to become a nun.

5.8. Mary cleverly became a nun.

Suppose, then, we start with an underlying structure of the form 5.9, where 'y' is an agent and therefore a deep subject.

5.9.



The constraint just proposed will prevent predicate-raising from applying to amalgamate cause and become in a structure like 5.9. Whether this prediction is borne out will depend on whether there are causative verbs in English that take agent objects. Predicate-raising will change 5.9 into [x cause-become y ...], where 'y' goes back to a deep subject and hence, by hypothesis, is an agent. Are there sentences like 'John killized Mary George' (meaning 'John caused Mary to kill George')? By-and-large, there are not. *Killize is an impossible English verb (I will consider verbs like gallop in a moment).

The argument is now the following. If agents are the only deep subjects, then agents may be the only subjects present when predicate-raising applies. It then becomes possible to place a natural constraint on predicate-raising, the existence of this constraint being confirmed by the non-occurrence of causative verbs with agent objects.

There are at least four objections that could be raised to the foregoing argument. The first is that there are, after all, verbs in English that take agent objects. The intransitive verbs walk, run, gallop, canter, follow certainly may take agent subjects:

5.10. The horse eagerly $\left\{\begin{array}{l}\text{walked}\\ \text{ran}\\ \text{galloped}\\ \text{cantered}\end{array}\right\}$ across the field.

5.11. The horse eagerly followed (after) the trainer.

There are corresponding transitive causatives, whose objects have the same role as do the subjects of the intransitive sentences (see Lyons, 1968):

5.12. The trainer $\left\{\begin{array}{l}\text{walked}\\ \text{ran}\\ \text{galloped}\\ \text{cantered}\end{array}\right\}$ the horse across the field.

5.13. The trainer led the horse (after him).

5.12 - 5.13 are thus causatives with agent objects, and one must conclude that there is no factual basis for the argument offered.

There are several lines that could be taken in replying to this objection. One would be to observe that the objects in 5.12 - 5.13 do not satisfy the tests for agentiveness given in Chapter Two. For instance, 5.14 - 5.15 are unacceptable.

5.14. *The trainer {walked / ran / galloped / cantered} the horse eagerly across the field. (The horse was eager.)

5.15. *The trainer led the horse eagerly after him. (The horse was eager.)

If manner adverbs could refer to objects, as in the intended interpretations of 5.14 - 5.15, this would indicate that the objects were agents (see Chapter Ten). The most acceptable example of this that I have found is 5.16, which is at best marginal.

5.16. ?The policeman led the child dejectedly out of the ice-cream parlor. (The child was dejected.)

My problem here is that I do not know enough about the "tests for agentiveness" to be able to judge when they should be applicable. Instead of attempting to determine directly whether the objects in question are agents, I will rely on a conclusion to be reached in Chapter Nine. I argue in Chapter Nine that when there is an agent subject, a causative verb cannot be syntactically decomposed into _cause_ plus one or more other verbs. There are verbs that result from predicate-raising to _cause_, but such verbs occur only in non-agentive sentences. Granted the validity of this conclusion, the derivations of 5.14 - 5.15 do not involve predicate-raising to _cause_, because the sentences are agentive. In fact, the verbs in question (_walk_, etc.) are pro-agentive when used transitively:

5.17. *The saddle {walked / ran / galloped / cantered} the horse across the field.

It is true that transitive lead may take a non-agent subject (5.18), but in this case lead seems no longer to be a causative; 5.19 is not close in meaning to 5.18.

5.18. Polaris led us out of the wilderness.

≠ 5.19.??Polaris caused us to follow after it out of the wilderness.

Of course, the force of this reply will depend on the quality of argumentation in Chapter Nine.

McCawley's analysis of kill (quoted in the first part of this chapter) is from the present standpoint incorrect. However, a different causative verb (one that does come from cause plus other verbs) would exemplify the predicate-raising transformation equally well.

A second objection, which I will mention but not reply to, concerns the second causative constructions in languages like Hindi and Finnish. The second causatives have verbs like the hypothetical English verb *killize--causatives of agentive verbs. In these two languages not only may the sentential complement of a second causative be agentive, but apparently it must be agentive (for Hindi, see Kachru, 1966, pp. 62ff; for Finnish, see Wall, 1968). An inquiry into the second causative construction would of course take us well beyond the bounds of English syntax. Suffice it to say at this point that I make no claim of universality for the constraint on predicate-raising I have proposed.

Yet another objection is that the non-occurrence of agent objects is a special case of one or more general phenomena. Fillmore has argued that there can be but one instance of a role, or deep case, per underlying clause (discounting conjunctions of noun phrases; see Fillmore, 1966, 1968). If we reject the causative analysis of verbs like kill and regard causative constructions as having underlying structures roughly the same as their superficial structures, then the non-occurrence of the configuration 'Agent Verb Agent' is an instance of the one-role-per-clause restriction. On the other hand, the non-occurrence of 'Non-Agent Verb Agent' is an instance of Fillmore's subject-choice hierarchy (other things being equal, an agent is the first choice for subject; see Chapter Three). As must be apparent, the choice between these alternative accounts will depend crucially on some agreement about the underlying complexity of causative constructions. If there are causative constructions in whose derivations predicate-raising to cause plays a part (as I maintain there are, in Chapter Nine), then the lack of superficial configurations of the form 'Non-Agent Verb Agent' requires an account that goes beyond Fillmore's generalizations.

The last objection is one that is discussed in Chapter Nine. I give there an analysis of a certain stress phenomenon which seems to indicate that predicate-raising moves verbs across experiencer noun phrases. If this analysis is correct, the constraint on predicate-raising cannot be maintained.

CHAPTER SIX

THE LIKE-SUBJECT REQUIREMENT

In certain cases the subject of an embedded sentence must be identical to some noun phrase in the matrix sentence. For instance the subject of leave in 6.1 and 6.2, although it has been deleted, is understood to be John.

6.1. John condescended to leave.

6.2. Harry persuaded John to leave.

Note that such cases as 6.1 and 6.2 are entirely distinct from the instances of subject-raising that have been brought up earlier (Chapters Two and Three). To note only one difference, the main verb of a sentence like 6.1 or 6.2 restricts a noun phrase in the position of John to animacy. One does not find such a restriction in cases of subject-raising; note 6.3 and 6.4.

6.3. It is likely to rain.

6.4. Harry believed it to have rained.

Owing to this and other differences from derivations with subject-raising, it has always been supposed that in 6.1, for example, condescend and leave both start out with subject (both are John) and that the subject of leave is deleted (see Poutsma, 1904-26; and Rosenbaum, 1967). It follows from the unacceptability of 6.5 - 6.8

that the subject of the complement is required to be the same as the noun phrase in the higher sentence and that this subject must be deleted.

6.5. *John condescended for George to leave.

6.6. *John condescended for himself to leave.

6.7. *Harry persuaded John for George to leave.

6.8. *Harry persuaded John for himself to leave.

Perlmutter has termed this requirement of identity the 'like-subject requirement.' Since Rosenbaum's analysis of the phenomenon (see Rosenbaum, 1967, p. 17), it has received much discussion. Lakoff (1965) proposes a connection between the requirement and the deletion of the complement subject. Perlmutter (1968) argues that the like-subject requirement applies to underlying structures, while Postal's (1968) contention is that the deletion of the complement subject takes place sometime after its deletability is established. Most recently Grosu (1970) has claimed that the like-subject requirement must apply between two subjects. This is not a comprehensive review of the literature on this subject, nor has the matter been made so clear by any of these authors that further discussion can be avoided. My purpose here is just to build on Perlmutter's analysis in order to construct an argument for agents' being the only deep subjects.

Let me first give a brief paraphrase of one of Perlmutter's arguments that the like-subject requirement must be applied at the level of underlying structure (Perlmutter, 1968, p. 39). Aside from a doubtful case of a pre-cyclic transformation (S-deletion; see Lakoff, 1966), the earliest transformations in a derivation apply cyclically--first to sentences which do not themselves include embedded sentences , then to sentences that embed the preceding sort of sentences (to which the cyclic transformations have applied once), and so on up a phrase structure tree. A constraint is 'pre-cyclic' if it must apply to an embedding sentence before a cyclic transformation has applied to the sentence embedded in the embedding sentence. It follows from the preceding that a pre-cyclic constraint applies very early in a derivation; in the absence of evidence to the contrary such a constraint may be assumed to apply at the level of underlying structure. It suffices then to show that the like-subject requirement is a pre-cyclic constraint.

Perlmutter gives the examples 6.9 and 6.10.

6.9. I condescended to allow him to go.

6.10. *I condescended to be allowed to go.

6.10 must be unacceptable because it fails to meet the like-subject requirement, yet after the passive transformation has applied to the sentential object of condescend the requirement is met. Consequently the appropriate place in the derivation of 6.10 to apply the like-subject requirement is before the passive transformation has applied to the complement (when it has the form of 'someone allow me to go'). Since the requirement is stated on the main sentence of 6.10 (the antecedent is the subject of condescend) before the complement is passivized, and since passive is a cyclic transformation (see Lakoff, 1966, and McCawley, 1970), the like-subject requirement is indeed pre-cyclic.

The argument based on Perlmutter's demonstration now goes as follows. If agents are the only deep subjects, we predict that the sentential object of condescend must be agentive, as in fact it must. Perlmutter notes that condescend's complement cannot have a stative main verb, but in fact the complement cannot have any anti-agentive main verb.

6.11. *John condescended to have red hair.

6.12. *John condescended to prove to like fish.

6.13. *John condescended to loom over us.

If it were not the case that agents were deep subjects and the only such, then there would be no apparent connection between these two constraints on the complement of condescend: that the complement must meet the like-subject requirement and that it must be agentive.

There are difficulties with this argument, but before looking at these let me note two more instances where it seems that an agentive restriction is a consequence of the like-subject requirement. The subject of a by-clause which is constituent in an agentive sentence is understood to be coreferential with the agent subject of the main sentence, as in 6.14 - 6.15.

6.14. John assassinated the Premier by shooting him.

6.15. *John assassinated the Premier by Harry's shooting him.

But as was noted in Chapter Two, in such circumstances the sentence of the by-clause must be agentive.

A similar example is agentive begin. It was proposed in Chapter Three that begin takes an optional agent, which must be present in a pro-agentive context like *cleverly* in 6.16.

6.16. John cleverly began running.

Supplying the understood subject of *run*, we find, then, two *John*'s in the underlying structure of 6.16, the second of which is deleted. But the subject of *run* cannot be different from *John*, as 6.17 shows, so here we have a case of the like-subject requirement.

6.17. *John cleverly began Mary's running.

From this we predict that *begin* in an agentive sentence must take an agentive object complement, which turns out to be the case.

6.18. *John cleverly began looming over us.

Naturally the like-subject requirement could not apply to a non-agentive sentence with *begin* since there is no antecedent noun phrase, so the acceptability and non-agentiveness of 6.19 are correctly predicted.

6.19. John began looming over us.

Now there are difficulties with Perlmutter's analysis of the like-subject requirement; some he points out, and others are brought up by Newmeyer in *Aspectual Verbs in English* (1969). But aside from these difficulties, which I will not discuss, there is at least one problem in connecting the like-subject and agentive constraints in the way I have just proposed. This is that there are verbs that have just one of these constraints on their complements. If the two constraints can apply separately, then there is a case for regarding it as a coincidence that both apply to sentential complement of verbs like *condescend*.

The true causative verb *have* requires an agentive sentential object, yet does not impose the like-subject requirement. In examples

6.20 - 6.22 I cite sentences with *have* in the progressive, since this eliminates a possible confusion with two other *have* constructions which were termed 'stative' and 'pseudo-causative' in Lee (1967). Stative *have* and pseudo-causative *have* do not occur in the progressive and, instead of requiring agentive complements, disallow them.

6.20. Mary was having John be careful.
6.21. *Mary was having John loom over them.
6.22. *Mary was having John grow to like fish.

On the other hand, *try*, *manage*, *succeed in* impose the like-subject requirement (6.23 - 6.26), yet sometimes allow non-agentive complements (6.27 - 6.32).

6.23. John $\left\{\begin{array}{l}\text{managed}\\ \text{tried}\end{array}\right\}$ to leave.
6.24. *John $\left\{\begin{array}{l}\text{managed}\\ \text{tried}\end{array}\right\}$ for Mary to leave.
6.25. John succeeded in leaving.
6.26. *John succeeded in Mary's leaving.
6.27. John tried to hear the funny noise.
but 6.28. *John cleverly heard the funny noise.
6.29. John managed to worry Mary.
but 6.30. ?John avidly worried Mary. (not in the sense 'harass')
6.31. John succeeded in giving Mary an urge to trip him.
but 6.32. ?Harry persuaded John to give Mary an urge to trip him.

This second sort of case, where the like-subject requirement does not entail an agentive constraint, is the worse for the theory that agents are the only deep subjects, because it seems to show that some non-agents are deep subjects. In the rest of this chapter, I will attempt a salvage operation by introducing an epicycle. There are two like-subject requirements, one of which applies at or soon after the level of underlying structure (the deep requirement) and the second of which applies later, when non-agent noun phrases have become subjects (the level of shallow structure; see Lakoff, 1969). The deep requirement does entail that the complement be agentive, but the shallow one does not.

There are at least three cases where I think one can see two like-subject requirements at work. The first is in an infinitival complement of the verb ask. Consider 6.33.

6.33. John asked the guard to be allowed to leave the room.

The understood subject of the complement sentence is of course John, but the understood subject of the active source sentence is the guard. That these understandings are imposed by like-subject requirements is shown by the marginal nature of 6.34 - 6.36.

6.34. ?John asked the guard for Harry to be allowed to leave the room.

6.35. ?John asked the guard for Harry to allow him to leave the room.

6.36. ?John asked the guard to be allowed by Harry to leave the room.

Note that the constraint on the subject of the complement's active source sentence is pre-cyclical, while the constraint on the subject of the passivized complement cannot be pre-cyclical. It should now follow that the noun phrase constrained by the deep, pre-cyclic requirement must be an agent; this is demonstrated by the unacceptability of 6.37, which follows from the fact that 6.38 would ordinarily be interpreted non-agentively.

6.37. *John asked the guard to be given a tendency to vomit.

6.38. The guard gave John a tendency to vomit.

A second case of two like-subject requirements is given in 6.39.

6.39. The Premier was assassinated by being shot.

The subject of be shot is understood to be the Premier, but also the unspecified logical subjects of be assassinated and be shot are understood to be coreferential. As in the previous case, the two agreements are obligatory, and the sentence whose subject is constrained must be agentive. It is worthwhile pointing out here that the shallow like-subject constraint could not be reformulated to constrain identity between the objects of the embedded and embedding sentences and apply pre-cyclically, because of the difference in acceptability between 6.40 and 6.41 (both of which come from the same underlying structure).

6.40. Someone assassinated the Premier by using a gun.

6.41. *The Premier was assassinated by a gun's being used.

These by-clause constructions will be looked at in more detail in Chapters Seven and Eight.

The third instance of the shallow like-subject constraint is less certain. Sentence 6.43 is just as bad as 6.42 (the sort of example Perlmutter's analysis is designed to handle).

6.42. *I condescended to be allowed to go.

6.43. *I condescended for John to be allowed (by me) to go.

If the underlying subject of the complement sentence in 6.43 is *I*, the deep like-subject requirement is satisfied, yet 6.43 is unacceptable. Both 6.42 and 6.43 could be ruled out by constraining *condescend*'s complement to meet the deep and the shallow like-subject requirements. The only thing that makes this case doubtful is that Perlmutter has an alternative explanation of the unacceptability of 6.43. He proposes (attributing the observation to John Ross) that "...an ungrammatical sentence always results if the passive transformation applies in an embedded sentence whose subject is identical to the subject of the matrix sentence." (p. 59). Such a constraint would obviously rule out 6.43. I am willing to propose a different account only because I find it difficult to believe in the unacceptability of sentences like 6.44, even without special emphasis on the pronoun.

6.44. The doctor $\left\{\begin{array}{l}\text{wanted}\\ \text{expected}\end{array}\right\}$ John to be examined by him. (where *him* refers to *the doctor*)

Whichever account of 6.43 is accepted, it appears that if a sentential complement must meet the deep like-subject requirement, then it also meets the shallow requirement.

It cannot be said, however, that the mysteries of *try*, *manage*, and *succeed in* have now been plumbed. Although I have given some evidence for a shallow like-subject requirement (or perhaps a reapplication of the deep requirement), if this were the only requirement on the complements of *try*, etc., these complements should appear as passives. However 6.45 shows that they do not.

6.45. ?John $\left\{\begin{array}{l}\text{tried}\\ \text{managed}\end{array}\right\}$ to be allowed to leave.

Examples like 6.45 derive their marginal acceptability from interpretations as reduced causatives ('John tried to get them to allow him to leave'), as Perlmutter shows, and so still manifest the deep like-subject constraint.

One further problem is the determination of the antecedent of the like-subject constraint. Following up Lakoff's (1965) decomposition of causatives (e.g., persuade may be from cause to intend to), it might be possible to constrain the antecedent to be a subject (see Grosu, 1970). This would be inconsistent with the analysis just presented, because, for example, the subject of intend is not an agent. However in Chapter Ten I shall argue that in a decisive number of cases the decomposition that would be required is not to be undertaken.

CHAPTER SEVEN

BY-CLAUSES

By-clauses consist of by plus a nominalized sentence or a relative clause construction, as in 7.1.

7.1. John amazed Mary by the way he ate.

This chapter is devoted to a taxonomy of such constructions. I shall talk about four sorts of by-clauses, to which I give the names 'cause,' 'enabler,' 'causative,' and 'method' by-clauses. Sentences with cause by-clauses have paraphrases in which the by-clause (without the by) appears as the subject of cause, as in 7.2 - 7.3.

7.2. John suffered by being an only child.

= 7.3. (John's) Being an only child caused John to suffer.

Similarly, sentences with enabler by-clauses have paraphrases with the nominalization of the by-clause as the subject of enable:

7.4. John overheard the conversation by having his ear at the keyhole.

= 7.5. (John's) Having his ear at the keyhole enabled John to overhear the conversation.

Causative by-clauses occur in non-agentive sentences, and do not fall into either of the two preceding categories. They occur always with a causative verb in the main sentence:

7.6. John convinced Mary that he was a Russian by the way he grew his moustache.

Method by-clauses are those which occur in agentive sentences:

7.7. John assassinated the Premier by shooting him.

I do not apply the term 'by-clause' to constructions that arise from applying the passive transformation to a sentence with nominalization or relative clause construction as subject, even though such constructions appear similar to those just exemplified. So 7.8 does not, in my terminology, contain a by-clause.

7.8. Mary's feelings were hurt by John's leaving so early.

Of course, this decision to exclude passive constructions requires some justification, since it is tempting to suppose a similar derivation for passives and by-clauses. I have noticed two differences between the passive constructions and by-clauses, at least the second of which I think is a rather important difference. Note first that the subject of the sentences after by in 7.8 above, John, is not the same as the superficial subject of the main sentence. On the other hand, the subject of a sentence in a by-clause (the understood subject, in case of deletion) is always coreferential with the superficial subject of the main sentence. Hence 7.9 - 7.12 are unacceptable.

7.9. ?John suffered by Harry's being an only child. (compare 7.2)

7.10. ?John overheard the conversation by George's having his ear to the keyhole. (compare 7.4)

7.11. *John convinced Mary that he was a Russian by the way Harry grew his moustache.

7.12. *John assassinated the Premier by George's shooting him.

The judgments are generally less clear with cause and enabler by-clauses (7.9 and 7.10) than with causative and method by-clauses (7.11 and

7.12). Even with the latter two types, those with good imaginations may be able to construct situations that come close to being appropriately described by sentences like 7.11 and 7.12; however if my intuitions are not awry this can only be accomplished by imposing interpretations as cause or enabler constructions.

The second difference between by-clauses and the passive constructions is that by-clauses can be questioned by how; compare 7.13 - 7.16 with the unacceptable 7.17 - 7.18.

7.13. How did John suffer? By being an only child.

7.14. How did John overhear the conversation? By having his ear at the keyhole.

7.15. How did John convince Mary that he was a Russian? By the way he grew his moustache.

7.16. How did John assassinate the Premier? By shooting him.

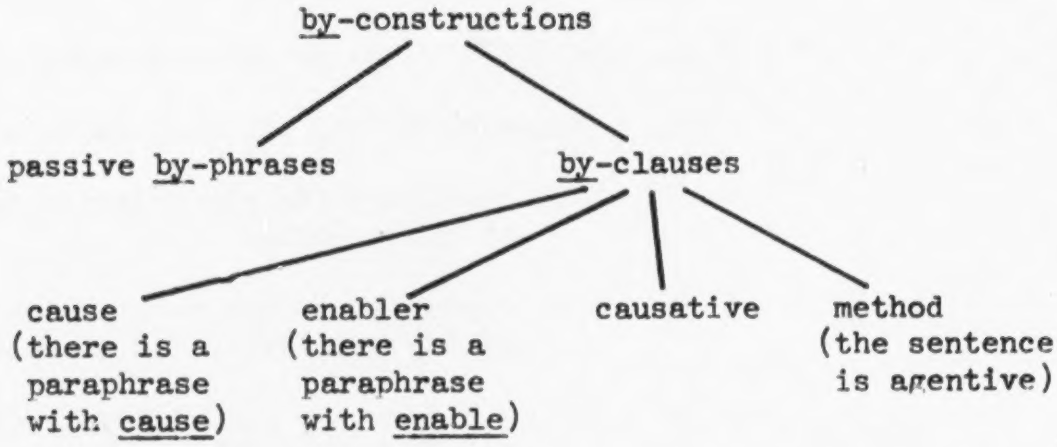
7.17. How was the Premier assassinated? *By John.

7.18. How was it implied that John disliked them? *By his leaving so early.

I attribute this difference to the fact that only constituents in underlying structure can be questioned. By-clauses are deep constituents, but the by of the passive is not present in underlying structure--it is added by transformation. Given this basic difference, a common source for by-clauses and passive by-phrases is out of the question. By-clauses in fact are manner adverbs, and with some exceptions go only with non-stative verbs; but of course many stative verbs can be passivized.

The diagram 7.19 summarizes the proposed taxonomy of by-constructions.

7.19.


by-constructions
passive by-phrases
by-clauses
cause (there is a paraphrase with cause)
enabler (there is a paraphrase with enable)
causative
method (the sentence is agentive)

I wish now to reduce the four categories of *by*-clauses exemplified above to the two more fundamental categories. I shall claim that sentences with cause and enabler *by*-clauses are reduced from more basic sentences with the main verb *cause* and are special cases of causative *by*-clauses. This will leave only two sorts of *by*-clauses--causative and method.

Consider first that getting cause *by*-clauses from higher sentences with *cause* is required for a syntactic account of the paraphrases with *cause*, of which I give a few more examples in 7.20 - 7.25.

7.20. John broke his leg by falling on the ice.

= 7.21. Falling on the ice caused John to break his leg.

7.22. John received a bite by forgetting to muzzle his dog.

= 7.23. Forgetting to muzzle his dog caused John to receive a bite.

7.24. John succeeded in avoiding the draft by being eight feet tall.

= 7.25. Being eight feet tall caused John to succeed in avoiding the draft.

In turn, we need the higher sentence analysis to account for paraphrases of sentences with enabler *by*-clauses, since 7.26 is a further paraphrase of 7.24 - 7.25, and 7.27 - 7.30 are paraphrases.

7.26. John avoided the draft by being eight feet tall.

7.27. John overheard the conversation by having his ear at the keyhole.

= 7.28. John succeeded in overhearing the conversation by having his ear at the keyhole.

= 7.29. Having his ear at the keyhole caused John to succeed in overhearing the conversation.

= 7.30. Having his ear at the keyhole enabled John to overhear the conversation.

To account for enabler by-clauses, then, in addition to whatever mechanism is necessary to produce cause by-clause constructions by deleting cause (7.29 → 7.28), we will need to delete succeed in (7.28 → 7.27) and to change cause to succeed in into enable (7.29 → 7.30). The existence of these sets of paraphrases does not show that a higher sentence analysis of cause and enabler by-clauses is correct, of course; it merely shows that such an analysis is feasible. Before giving my reason for believing in the correctness of a higher sentence analysis, I wish to clear up an apparent difficulty.

Causative by-clauses are supposed not to occur in agentive sentences, yet enabler by-clauses can occur in sentences with pro-agentive verbs, as 7.31 - 7.34 show.[1]

7.31. John assassinated the Premier by having a gun.

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[1] Some people do not accept 7.31, 7.33, and other sentences in which the verb phrase of the enabler by-clause is anti-agentive. A stative verb was chosen for these examples merely to avoid a method by-clause interpretation; the acceptability of 7.31 and 7.33 is not crucial for the analysis.

= 7.32. Having a gun enabled John to assassinate the Premier.

7.33. John ate the whole fish at once by having a big mouth.

= 7.34. Having a big mouth enabled John to eat the whole fish at once.

Furthermore, the sentences 7.31 and 7.33 are non-agentive, since they are rejected in other pro-agentive contexts:

7.35. *John assassinated the Premier by having a gun in order to prove something.

7.36. *John enthusiastically ate the whole fish at once by having a big mouth.

The higher sentence analysis allows us to resolve this difficulty by saying that, despite appearances, the main verbs of 7.31 and 7.33 are not _assassinate_ and _eat_, but rather _cause_ in both cases. There is no problem here if we consider the underlying form; in 7.31 and 7.33 the agents demanded by _assassinate_ and _eat_ are present, but they are agents of embedded sentences, not of the matrix sentences. I should point out that the adverbs like _enthusiastically_ must go with the matrix sentence if they come before the verb (as in 7.36), but can go with the embedded clause if they come just before the _by_-clause as in 7.37.

7.37. John drove cleverly by having gone to a special school.

A source of some confusion is the fact that sentences with method _by_-clauses may also have interpretations as enabler constructions. Consider 7.38.

7.38. John assassinated the Premier by developing his muscles.

7.38 could mean that John's doing exercises made him so strong that he was able to assassinate the Premier (an enabler construction) or it could mean that John, as the Premier's trainer, got him to exercise so much that the Premier's muscles became over developed, put a strain on his heart, and this killed him. This second interpretation disappears, however, when the sentence is in an external-type pro-agentive context. 7.39 is unambiguous; _his_ refers to _John_.

7.39. His cell leader ordered John to assassinate the Premier by developing his muscles.

Now the argument for the higher sentence analysis of sentences with cause or enabler _by_-clauses is that the analysis is required in order to account for some apparent exceptions to a certain constraint and to account for the unexpected non-ambiguity of some _by_-clause constructions. The constraint, perhaps a special case of Fillmore's one-role-per-clause constraint (see Chapter Five), is that there can be just one manner adverb per underlying clause. This manner-adverb-exclusion constraint accounts for the unacceptability of such sentences as 7.40 - 7.41.

7.40. *John opened the window carefully suddenly.

7.41. *Mary washed her socks slowly thoroughly.

However, using -ly adverbs to exemplify this constraint is not straightforward, since such adverbs need not be adverbs of manner. Particularly in the position before the verb, these adverbs can have quite a different function. In at least one interpretation of 7.42, _quickly_ is not a manner adverb.

7.42. Mary quickly washed her socks.

The normal sense of 7.42 is not that quickly qualifies just the action of Mary's washing but rather that it refers to the interval between some unspecified time and Mary's washing. It is not surprising, then, that 7.43 is perfectly acceptable, but only in an interpretation where quickly is not a manner adverb.

7.43. Mary quickly washed her socks thoroughly.

Rapidly, as opposed to quickly, has a tendency to be interpreted only as a manner adverb. Hence 7.44 is a little worse than 7.43.

7.44. ?Mary rapidly washed her socks thoroughly.

But it is always fair to call adverbs of the form 'in a _____ manner' manner adverbs. To give one more illustration of the distinctions that must be made, note that in final position deliberately can generally be interpreted as meaning 'in a deliberate manner', in which case it is a manner adverb, or 'on purpose', in which case it is not. Before the verb, it tends to have the latter interpretation:

7.45. Mary washed her socks deliberately.

7.46. Mary deliberately washed her socks.

The constraint to one manner adverb per clause is verified by the fact that when deliberately co-occurs with a manner adverb, it has only the sense of 'on purpose':

7.47. Mary washed her socks in a thorough manner deliberately.

How can question several sorts of adverbs, but in these cases where an -ly adverb can either function as a manner adverb or not, how can question only the manner adverb. So in answer to 'How did Mary wash her socks?', 7.45 above is unambiguous and 7.46 is unacceptable.

The relevance of all this to by-clauses is that when a by-clause co-occurs with another manner adverb, the by-clause must be a cause or enabler by-clause. Thus, while 7.48 is not necessarily a paraphrase of 7.49 (7.48 is not a paraphrase if its by-clause is taken as a method by-clause), 7.50 is an exact paraphrase of 7.51.

7.48. Mary washed her socks by using a detergent.

7.49. Using a detergent enabled Mary to wash her socks.

7.50. Mary washed her socks rapidly by using a detergent.

= 7.51. Using a detergent enabled Mary to wash her socks rapidly.

Similarly, the question 7.52 can only be taken in the sense of 7.53 or 7.54.

7.52. How did Mary wash her socks rapidly?

= 7.53. What enabled Mary to wash her socks rapidly?

or 7.54. What caused Mary to wash her socks rapidly?

Method by-clauses act like -ly manner adverbs, but there are no -ly adverbs that act like cause or enabler by-clauses. 7.55 could be answered with either a by-clause (e.g., By using a detergent), or with an appropriate -ly manner adverb (Rapidly), but 7.52 above cannot be answered with an -ly adverb.

7.55. How did Mary wash her socks?

With the higher sentence analysis of cause and enabler by-clauses, we can understand sentences like 7.50 where two manner adverbs come together in the same superficial clause. The manner adverb constraint is not violated in 7.50, since in underlying structure the first manner adverb goes with an embedded sentence (whose main verb is wash), but the second manner adverb goes with the matrix (whose main verb is cause). We can also understand the loss of ambiguity between sorts of by-clauses when another manner adverb is added to the sentence.

Given the correctness of the higher sentence analysis, we are left with two categories--causative by-clauses (including cause and enabler by-clauses) and method by-clauses. I said at the beginning of the chapter that causative by-clauses occur in non-agentive sentences, while method by-clauses occur in agentive sentences. It remains to be shown that this classification into two types is not just a whim, but expresses a real distinction. In what follows I cite several properties that distinguish causative and method by-clauses.

For one thing, the sentence contained in a method by-clause must be agentive, whereas a sentence in a causative by-clause need not be. From this it follows that a sentence with a non-agentive by-clause cannot itself be agentive. 7.56 - 7.58 confirm this observation.

7.56. *John deliberately amazed Mary by being so tall.

7.57. *Harry persuaded John to frighten the baby by casting a dark shadow.

7.58. *John enthusiastically demonstrated the correctness of Mary's prediction by turning out to have a birthmark.

It also follows that an ambiguous sentence with a by-clause that can be either method or causative will be disambiguated by changing the verb of the by-clause to an anti-agentive verb. Compare 7.59 (with a method or enabler by-clause) with the unambiguous 7.60.

7.69. John ate the fish by using a fork.

7.60. John ate the fish by having a fork.

Looking at matters the other way, a sentence that would in isolation be ambiguously either agentive or non-agentive, must be agentive when put into a *by*-clause that occurs in an agentive sentence. Compare the ambiguous 7.61 with 7.62.

7.61. John frightened the baby.

7.62. John cleverly demonstrated his point by frightening the baby.

Another difference is that causative *by*-clauses express reasons, but method *by*-clauses do not. 7.63 - 7.68 give pairs of close paraphrases.

7.63. John prevented our departure by lying asleep in front of the door.

= 7.64. The reason John prevented our departure was that he lay asleep in front of the door.

7.65. John broke his leg by falling on the ice. (cause *by*-clause)

= 7.66. The reason John broke his leg was that he fell on the ice.

7.67. John won by having the longest stride. (enabler *by*-clause)

= 7.68. The reason John won was that he had the longest stride.

However 7.69 and 7.70 are not at all close in meaning.

7.69. John cleverly prevented our departure by lying on the floor.

≠ 7.70. The reason that John cleverly prevented our departure was that he lay on the floor.

What lies behind this difference between causative and method *by*-clauses will be explored in Chapter Eight.

A third difference is that relative clause constructions with by occur as causative by-clauses, but not as method by-clauses. Compare 7.71 and 7.72.

7.71. John frightened the baby by the way he walked.

7.72. ?John deliberately frightened the baby by the way he walked.

In general method by-clauses require the deletion of the subject of the sentence in the by-clause, and perhaps the unacceptability of 7.72 has to do with the difficulty of deleting the subject of a finite clause. 7.73 - 7.76 show that deleting the subject in a method by-clause increases acceptability.

7.73. ?Mary ordered John to postpone the question by his concealment of the evidence.

7.74. Mary ordered John to postpone the question by concealment of the evidence.

7.75. ?John cleverly assassinated the Premier by his use of a gun.

7.76. John cleverly assassinated the Premier by the use of a gun.

In such cases of by plus a derived nominal, however, this difference is often quite marginal. Conversely, causative by-clauses with derived nominals are more acceptable when they retain their subjects:

7.77. John turned out to annoy Mary by his insistence on the point.

7.78. ?John turned out to annoy Mary by insistence on the point.

The point in having turn out in these examples is to guarantee that we are dealing with a causative by-clause, since the complement of turn out cannot be agentive.

When the by-clause consists of by plus a gerundive nominal, all by-clauses are better without subjects, as was pointed out above.

These concomitant differences between by-clauses in agentive sentences and those in non-agentive sentences certainly seem to justify supposing some important distinction between the two sorts of by-clauses or the two sorts of sentences that contain them. Some of the differences will be analyzed in the following chapter.

CHAPTER EIGHT

SUBJECTS FROM BY-CLAUSES

To propose that agents are the only deep subjects is at the same time to take on the duty of finding out where non-agent superficial subjects come from. Conversely, if there are plausible sources for non-agent subjects other than the superficial positions as subjects, then the theory that agents are the only deep subjects will seem more likely to be correct. In this chapter I suggest by-clauses as the source for non-agent subjects of certain causative verbs. The class of verbs in question will be discussed in the next chapter, but lest the scope of the present proposal seem unduly restrictive, I should say now that all non-agent subjects of causatives are from instrumental phrases (see Chapter Three) or from by-clauses.

As was noted in Chapter Seven, the subject of a by-clause must be coreferential with the subject of the matrix sentence. The present example 8.1 was also discussed in Chapter Six, where it was seen to display a deep like-subject requirement, as well as a shallow (post-passive) like-subject requirement.

8.1. The Premier was assassinated by being shot.

Besides being coreferential, the logical subjects of the main sentence and by-clause of 8.1 are both agents. I attributed this to the pre-cyclical application of the deep like-subject requirement, since only agents are subjects before the cycle. Since 8.1 contains a method by-clause, since such by-clause examples with a demonstrably precyclical like-subject requirement always have method by-clauses, and since all method by-clauses occur in agentive sentences and are themselves agentive, I will suppose that the deep like-subject requirement applies to all method by-clauses. This requirement will then account for the subject-subject agreement found with method by-clauses, as also for the requirement that method by-clauses must be agentive.

But the subject-subject agreement in sentences with causative by-clauses cannot be attributed to a deep like-subject requirement. Causative by-clauses do not yield examples of double agreement, and need not be agentive. At this point it will be instructive to examine a paradigm of sentences with a verb that can take both method and causative by-clauses:

8.2. John cleverly prevented us from leaving by lying on the floor. (method by-clause)

8.3. John prevented us from leaving by lying asleep on the floor. (causative by-clause)

= 8.4. John's lying asleep on the floor prevented us from leaving.

Paradigms like 8.2 - 8.4 share a number of similarities with the paradigms considered in Chapter Three, particularly the begin paradigm. This suggests that prevent takes an optional agent, and that in 8.3 (where there is no agent in the main sentence) John is a fill-in taken from the by-clause by the familiar process of subject-raising. We can then account for the fact that 8.3 and 8.4 are paraphrases by allowing a choice in subject-raising: either the whole by-clause is raised (by being then deleted just as instrumental with is deleted), or just the subject of the by-clause is raised. Allowing such a choice is not at all arbitrary in this case, since the existence of a choice between the whole or part of a verb phrase constituent is a general feature of situations where a noun phrase may fill-in for a missing agent. In particular, exactly this choice between the subject of a sentence or the whole sentence is present in the case of begin. Compare 8.5 - 8.6 with 8.7 - 8.8.

8.5. Mary surprised us by decaying.

= 8.6. Mary's decaying surprised us.

8.7. Mary began decaying.

= 8.8. Mary's decaying began.

The parallelism extends even further. Begin imposes the like-subject requirement on its sentential object, the antecedent being the subject of begin. If begin has no agent and thus no subject, the requirement is vacuous. Hence, the like-subject requirement accounts for the fact that begin and prevent in agentive sentences require an agentive sentential object and by-clause, respectively.

Thus although both method and causative by-clauses display agreement between their subjects and the subjects of their matrix sentences, this agreement comes about in two quite different ways--through the deep like-subject requirement or through subject-raising.

Two other similarities between by-clause paradigms and the paradigms in Chapter Three should be pointed out. In both, the part-constituent may become subject of the main sentence and still be represented by a pronoun in its original position. In the case of causative by-clauses, this was illustrated in the previous chapter by examples like 8.9.

8.9. John frightened the baby by the way he walked.

Furthermore, by-clauses also furnish cases of functional agentive/non-agentive ambiguity, as in 8.10 which can be construed as having either a causative or a method by-clause.

8.10. John prevented us from leaving by lying on the floor.

The ambiguity of 8.10 is perhaps not entirely obvious because the agentive interpretation implies the non-agentive interpretation (but not the reverse). This can be seen by noting that 8.11 implies 8.12 as well as implying the non-agentive sense of 8.10 (in which sense 8.10 is a paraphrase of 8.12).

8.11. John cleverly prevented us from leaving by lying on the floor.

8.12. John's lying on the floor prevented us from leaving.

Of course adding asleep after lying in 8.10 disambiguates the main sentence, and this device was deliberately employed in previous examples to avoid an ambiguity at an awkward point in the argument.

In contrast to verbs like prevent, persuade, frighten, which take either causative or method by-clauses, there are verbs that take only method by-clauses (discounting now cause and enabling by-clauses which are not in construction with the superficial main verb.) These are pro-agentive verbs. Since sentences with pro-agentive verbs and method by-clauses are like the agentive members of the paradigms we have just considered, it is straightforward to extend the preceding analysis to these cases. All that need be said is that the verb requires an underlying subject and that this subject calls into play the deep like-subject constraint, which in turn requires the _by_-clause to be agentive.

This analysis of causative and method _by_-clauses makes a prediction about subject-verb constraints. If the main subject in a sentence with a causative _by_-clause is from the _by_-clause, one would not expect the main verb to restrict the choice of superficial subject. This is because the subject and verb are not closely connected in underlying structure; in fact they are from different clauses. On the other hand, main subject and verb in sentences with method _by_-clauses originate in the same clause and next to each other; here one expects selectional restrictions. By-and-large, this prediction is borne out. For instance, a sentence with the main verb _scatter_ and a method _by_-clause must have a collective or plural subject.

8.13. The crowd hurriedly scattered by using every exit.

But to my knowledge, there is no verb which, when used with a causative _by_-clause, requires a plural or collective subject. Likewise, no verb with a causative _by_-clause requires an animate subject. There is an exception to the prediction, though. A few verbs (_lead to_, _result in_) take causative _by_-clauses, yet require abstract subjects. So compare 8.14 with 8.15.

8.14. Mary's hitting John led to his hospitalization by aggravating his kidney condition.

8.15. *Mary led to John's hospitalization by hitting him.

Since there are pro-agentive verbs that take (method) *by*-clauses, it would be odd were there not also anti-agentive verbs that take (causative) *by*-clauses. There are indeed a few verbs (or verbal phrases) whose use in agentive sentences is at least questionable. I list a few in 8.16.

8.16. necessitate
lead to
result in
doom
oblige
destine

gratify
disappoint
flabbergast
amaze
worry
thrill
stymy

give a person $\left\{\begin{array}{l}\text{a tendency}\\ \text{an urge}\\ \text{an idea}\end{array}\right\}$

The verbs in the second column might be called "anthropomorphic" psych verbs, since human qualities are attributed to their objects (as opposed to *annoy*, *frighten*, *surprise*, whose objects can be animals).

But now a much more serious matter is the source of non-agent subjects when the sentence has no *by*-clause. It would be incredible if the subjects of 8.17 and 8.18 came from different places, since the sentences are interpreted in the same way (that is, the *by*-clause seems 'optional' in the sense of Chapter Two).

8.17. The cavern frightened Mary by being dark inside.

8.18. The cavern frightened Mary.

Since I claim that the subject of 8.17 is raised from the *by*-clause, and am convinced that the superficial subjects of 8.17 and 8.18 play the same role (have the same interpretation with respect to the verb and object), I must resort to a deleted *by*-clause in 8.18 to provide a source for the subject. Aside from having a subject (*the cavern*), the *by*-clause must be unspecified. There are independent reasons for thinking that the derivation of 8.18 involves deleting a by-clause.

Recall the discussion of manner adverbs in Chapter Seven, where the constraint that a clause can have only one manner adverb was used to support the 'higher cause-sentence' analysis of cause and enabler by-clauses. It was noted that a question like 8.19 can be answered with a cause or enabler by-clause, but not with an -ly manner adverb.

8.19. How did John eat the fish so quickly?

This is because how questions a manner adverb here, but the clause whose main verb is eat already has a manner adverb, quickly, so that the only source for an additional adverb is a higher cause sentence. Now if 8.18 has an underlying by-clause, this should fill the manner adverb quota for the frighten clause. It should then be impossible to answer the question of 8.20 with an -ly manner adverb or with a phrase 'in a _____ manner.'

$$\text{8.20. How did the cavern frighten Mary?} \left\{\begin{array}{l} \text{?Gradually.} \\ \text{?In a gradual manner.} \\ \text{?Suddenly.} \\ \text{?Simply.} \\ \text{?In a simple manner.} \\ \text{?In a terrible manner.} \\ \text{?In an involved manner.} \end{array}\right\}$$

Contrast 8.20 with 8.21, where the subject of frighten may be construed as an agent.

$$\text{8.21. How did John frighten Mary?} \left\{\begin{array}{l} \text{Gradually.} \\ \text{In a gradual manner.} \\ \text{Suddenly.} \\ \text{Simply.} \\ \text{In a simple manner.} \\ \text{In a terrible manner.} \\ \text{In an involved manner.} \end{array}\right\}$$

If John is an agent, there is no need to postulate an underlying by-clause, and so there is room in the frighten clause for a manner adverb. Notice that John must be taken as an agent if the answers of 8.21 are to be appropriate. By the same token, the manner adverb in 8.22 forces an agentive interpretation:

8.22. John frightened Mary in an involved manner.

It also follows that an anti-agentive verb that takes a causative by-clause cannot take a manner adverb other than a by-clause:

8.23. *John gave Mary a strange urge gradually.

8.24. *John worried Mary in an involved manner.

In these circumstances, manner adverbs (except by-clauses) are pro-agentive. The manner adverbs could not be excluded from 8.23 - 8.24 on the grounds that the verbs were stative, because these verbs can occur in the progressive:

8.25. John was giving Mary a strange urge.

8.26. John was worrying Mary.

One final point is that adverbs which can ordinarily be interpreted as manner adverbs must receive another interpretation if they occur in sentences whose subjects come from by-clauses (whether or not the by-clause appears on the surface). In 8.27, quickly must signify that not much time elapsed before the cavern frightened Mary.

8.27. The cavern frightened Mary quickly.

In 8.28, horribly must be taken as an extent adverb.

8.28. The cavern frightened Mary horribly.

Another argument for later-deleted by-clauses as sources for non-agent subjects is provided by the paradoxical nature of 8.29.

8.29. The poison hastened Mary's death, and the poison was in the pill she took; but the pill she took did not hasten her death.

I would argue that the first sentence of 8.29, 'the poison hastened Mary's death', is incomplete because no physical connection has been established between the poison and Mary's death. Establishing such connections is the function of by-clauses, but here the by-clause has remained unspecified. Given the felt incompleteness of the first sentence, it is natural to take the second sentence as specifying what the by-clause should have been. That is, assuming 8.29 to be a connected discourse, the first two sentences have the force of 8.30.

8.30. The poison hastened Mary's death by being in the pill she took.

But since 8.30 is from 8.31, and since 8.32 and 8.33 are paraphrases, 8.30 has the paraphrase 8.34.

8.31. [hastened Mary's death by the poison's being in the pill she took]

8.32. The poison was in the pill Mary took.

8.33. The pill Mary took contained poison.

8.34. The pill Mary took hastened her death by containing poison.

8.34 can thus be deduced from the first two sentences of 8.29, but 8.34 is a contradiction of the last sentence in 8.29--hence the paradox. On the other hand 8.35 is not necessarily paradoxical, because its force may be to deny the relevancy of the second sentence to the first; that is, the second sentence is not to be taken as specifying a by-clause of the first.

8.35. The pill Mary took hastened her death, and the pill
she took contained the poison; but the poison
did not hasten her death.

The preceding can now be summed up as four arguments for getting non-agent subjects of verbs that take causative _by_-clauses, from those _by_-clauses.

First, we have the parallelism of the _by_-clause paradigm and the _begin_ paradigm; and Perlmutter's arguments establish that _begin_ can get its subject from its sentential complement. Perlmutter cites the examples 8.36 and 8.37.

8.36. It began to rain.

8.37. Heed began to be taken of the situation.

The expletive _it_ must be associated with _rain_, since _it_ is not anaphoric here. Likewise _heed_ does not occur independently of _take_.

Second, if one maintained that these non-agent subjects were also deep subjects of the main sentence, it is difficult to see how to account for the fact that either the presence a non-agentive _by_-clause or the presence of a non-agentive main verb results in sets of paraphrases, consisting of a sentence with a sentential subject and a sentence with a simple subject and a _by_-clause. The paraphrase relationship itself would not be particularly difficult to account for (one could replace the subject with the _by_-clause, for instance), but it would not be easy to capture the connection between non-agentiveness and the existence of the paraphrases.

Third, the subject-raising analysis yields a pretty good semantic reconstruction. What 8.38 really means is that something about John or something he did gave Mary a strange urge.

8.38. John gave Mary a strange urge.

Lastly, we can explain why a clause with a non-agent subject and a verb that can take a causative _by_-clause can contain no manner adverb other than that _by_-clause.

On the other hand, however, there are some problems with the analysis just given. For one thing, raising subjects that are quantified or have negatives changes the meaning of sentences. Compare 8.39 - 8.40 and 8.41 - 8.42.

8.39. Not one person annoyed John by falling asleep.

≠ 8.40. Not one person's falling asleep annoyed John.

8.41. Three men disappointed Mary by falling asleep.

≠ 8.42. Three men's falling asleep disappointed Mary.

It may be that the lack of synonymy in such cases is the result of restrictions on quantifier-lowering (see Lakoff, 1969). It appears that if the verb of the main sentence does not command a quantifier or a negative in underlying structure, then the quantifier or negative may not command the verb in shallow structure.

A more serious problem is that causative _by_-clauses with passive sentences are generally unacceptable, e.g. 8.43.

8.43. *John puzzled Mary by being asked to leave.

I have no idea why this should be so.

Finally, the unacceptability of sentences in which expletives have been raised, like 8.44 - 8.46, constitutes a good argument against my analysis.

8.44. *There annoyed John by being a commotion.

8.45. *It prevented the picnic by hailing.

8.46. *It annoyed Mary by raining all day.

I personally find 8.46 to be acceptable, but hardly anyone else does.

CHAPTER NINE

INDIRECT CAUSATION

This chapter deals with the decomposition of verbs in causative sentences into cause plus another verb. I shall argue that sentences normally regarded as causatives are of two sorts, which I term 'direct causatives' and 'indirect causatives'. An indirect causative is a sentence like 9.1, which is in a way incomplete.

9.1. The huge boulder prevented us from walking along the path.

9.1 really means that some property of the boulder of some event involving the boulder prevents us from walking along the path. In a specific situation, 9.1 might be filled in more by saying, e.g., 9.2.

9.2. The huge boulder's standing in our way prevented us from walking along the path.

Of course the incompleteness of sentences like 9.1 was cited in the last chapter to support the analysis given there, under which the subject of 9.1 would come from inside a by-clause and the subject of 9.2 would be derived by moving a whole by-clause to the front.

A direct causative is a sentence like 9.3.

9.3. John ate the fish.

Unlike 9.1, 9.3 cannot be filled in by substituting a sentential noun phrase for the subject.

My contention will be that indirect causatives are from underlying structures with cause; i.e., the verb of an indirect causative, if it is not cause itself or an equivalent (such as make or bring about), must be analyzed into cause plus another verb. On the other hand, verbs of direct causatives do not lend themselves to decomposition. A direct causative is not an underlying structure with the verb cause unless its superficial verb is cause. Furthermore, all agentive causative sentences are direct causatives.

Before proceeding with the main argument, I shall point out the significance of the conclusion for the hypothesis that agents are the only deep subjects and also give a categorization of verbs that turn up in indirect causatives.

In Chapter Three I followed the analysis in Barbara Hall Partee's dissertation, Subject and Object in Modern English (1965). Her proposal was that such verbs as break take optional subjects. But she also considered an alternative analysis in which the transitive versions of break-type verbs are given a causative structure. In this causative analysis 9.4 would be a causative of 9.5--something like 9.6.

9.4. John broke the window. (in the agentive sense)

9.5. The window broke.

9.6. $_S$[John caused $_S$[the window break]]

The causative analysis is the one accepted in Lakoff (1965). Now if the causative analysis is correct, clearly the paradigms in Chapter Three no longer support the hypothesis that agents are the only deep subjects; we could account for the relationship between 9.4 and 9.5 either on the assumption that all sentences have deep subjects--with 9.6 as the underlying structure of 9.4--or on the assumption that there are no deep subjects, in which case (with McCawley, 1970) we would give 9.7 as the underlying structure of 9.4.

9.7. $_S$[cause John $_S$[break the window]]

Both versions of the causative analysis seem to reflect the optionality of agents with break, etc., and this analysis has the additional advantage of revealing the intuitively felt causativeness of break when it has a direct object. Nevertheless, the causative analysis exemplified in 9.3 makes it difficult to account for the non-agentive paraphrase that was discussed in Chapter Three, although this would not be a problem with the McCawley version (9.7). The conclusion to be presented, however, gives an argument against any version of a causative analysis. 9.1 is agentive, and therefore it is a direct causative, whose verb cannot be decomposed into cause to break.

In the discussion of the deep like-subject requirement, I mentioned that if the antecedent must be a subject (compare Grosu, 1970) this would show immediately that there are some deep subjects that are not agents--and this because of verbs like intend. But the antecedent cannot always be a subject unless, for example, 9.8 comes from 9.9.

9.8. John cleverly persuaded Mary to leave.

9.9. John cleverly caused Mary to intend to leave.

That is, this proposal for the formulation of the like-subject requirement requires the decomposition of verbs in agentive sentences. If I am right, however, 9.8 cannot be from 9.9 because, being agentive, 9.8 is a direct causative.

Now it will be helpful to have a stock of indirect causative verbs to work with. The indirect causatives, it will turn out, are just sentences with causative by-clauses. The verbs that take causative by-clauses fall into one of four categories:

IX.A. Cause and its synonyms: bring about, make.

IX.B. Verbs from cause plus a lower verb (or adjective) with an abstract complement (with become interpolated in the case of stative adjectives):

necessitate (cause to become necessary)
suggest (cause to seem)
clarify (cause to become clear)
guarantee (cause to become certain)
prevent (cause to become impossible or cause not to happen)

In the case of a verb that takes either an abstract or a concrete complement, like be clear, only the abstract complement allows the formation of an indirect causative. Compare 9.10 and 9.11.

9.10. The eggshells clarified the situation.
9.11. The eggshells clarified the wine.

It is apparent that the subjects in 9.10 and 9.11 are interpreted quite differently, the eggshells in 9.10 being a kind of abbreviation. If a causative by-clause is added to 9.11 it must be interpreted as an enabler by-clause, in which case it is not in construction with clarify but is from a higher sentence (see Chapter Seven).

IX.C. Verbs from cause plus a lower verb with an (animate) experiencer (Postal, 1968, calls these "psych verbs"):

frighten (cause to become frightened)

annoy (cause to become annoyed)

tickle (cause to become tickled)

flabbergast (cause to become flabbergasted)

irritate (cause to become irritated)

But again, changing the complement to a concrete inanimate, if possible at all, changes the sense of the construction to direct causation:

9.12. The feather tickled Mary. (in the sense 'made her amused')

9.13. The feather tickled Mary's foot.

9.14. The earring irritated Mary.

9.15. The earring irritated Mary's ear.

IX.D. Verbs from cause plus a lower verb with both an experiencer and an abstract complement:

persuade a person that.../cause a person to believe that...

suggest (to a person) that.../cause it to seem (to a person) that...

guarantee (a person) that.../cause it (or a person) to be certain that...

prepare a person for.../cause a person to be ready for...

$$\text{give a person} \left\{\begin{array}{l}\text{an idea}\\ \text{an urge to...}\\ \text{second thoughts}\end{array}\right\} \text{/cause a person to have} \left\{\begin{array}{l}\text{an idea}\\ \text{an urge to...}\\ \text{second thoughts}\end{array}\right\}$$

Supposing agents to be the only deep subjects, then A, B, C, and D can be summed up formulaically by saying that predicate-raising to *cause* is possible only in the configuration: ${}_{S}[{}_{VP}[$cause ${}_{S}[$V (experiencer (abstract)$]_{S}$ ..., where the linked parentheses mean one or both elements must be present.

I shall now give five arguments to the effect that the verbs in indirect causative constructions are decomposible into *cause* plus another verb, but the verbs in direct causative constructions are not.

Argument 1. Pairs of sentences like 9.16 - 9.17 and 9.18 - 9.19 are not quite paraphrases, although they are very close in meaning. (9.16 - 9.19 should be taken in their agentive readings.)

9.16. John killed Mary.

9.17. John caused Mary to die.

9.18. John boiled the water.

9.19. John caused the water to boil.

For 9.18 - 9.19, suppose for instance that the water was on the stove and John refused to turn off the burner; then 9.19 would be more appropriate than 9.18. However, this difference in interpretation does not obtain between corresponding indirect causatives:

9.20. The shoes necessitated a reconsideration.

= 9.21. The shoes caused a reconsideration to become necessary.

9.22. The box's surface suggested that it was made of wood.

= 9.23. The box's surface caused it to seem that it was made of wood.

This difference between the direct causatives 9.16 and 9.18 and the indirect causatives 9.20, 9.22 is a most direct kind of evidence for the position being argued.

It may seem odd that I am calling 9.17 and 9.19 direct causatives in their agentive interpretations, since these sentences differ from 9.16 and 9.18 just in being less direct. However, the indirectness in 9.17 and 9.19 is with respect to the embedded sentences, not with respect to *cause*.

There is a class of verbs with experiencer objects that are apparent exceptions in that the simple version and the decomposed version with *cause* do not give exact paraphrases. The difference, however, is not one of "directness," so I will discuss these cases at the end of this chapter.

Argument 2. The verb *cause* takes an abstract subject or a causative *by*-clause; both of these are understood as expressing reasons. But direct causatives may not have abstract subjects:

9.24. *John's failure to turn off the burner boiled the water.

Hall Partee (1965, p. 28) pointed out the unacceptability of sentences like 9.24, as well as citing pairs of sentences like 9.25 - 9.26.

9.25. A change in molecular structure caused the window to break.

9.26. *A change in molecular structure broke the window.

Neither do direct causatives have causative *by*-clauses, unless they are enabler *by*-clauses from a higher sentence. Of course these two restrictions on direct causatives are really one restriction by the analysis of the preceding chapter. Given the present claim that indirect causatives are from *cause* sentences, causative *by*-clauses can be restricted to occurring in construction with the verb *cause* (when it does not have an agent).

Argument 3. Verbs in direct causatives tend to be idiosyncratic in comparison with verbs in indirect causatives. This is what one would expect if direct causative verbs are really simple unanalyzable lexical items. For instance, a positive declarative indirect causative with suggest or guarantee implies the truth of the sentential object of cause (supposing appropriate decompositions of suggest and guarantee). This property can be attributed to cause, the truth of whose object complement is implied. So 9.27 implies 9.28 and 9.29 implies 9.30.

9.27. Something suggested to Mary that pigs were stupid.

9.28. It seemed to Mary that pigs were stupid.

9.29. The presence of an entry permit guaranteed Mary that she would be allowed to come along.

9.30. Mary was certain that she would be allowed to come along.

However, assuming the same decomposition, corresponding agentive direct causatives do not have this property. 9.31 does not imply 9.32 and 9.33 does not imply 9.34.

9.31. John cleverly suggested to Mary that pigs were stupid.

9.32. It seemed to Mary that pigs were stupid.

9.33. John condescendingly guaranteed Mary that she would be allowed to come along.

9.34. Mary was certain that she would be allowed to come along.

The fact that direct causatives may lack this implicative property indicates that they are not from cause sentences (compare with Wall, 1967).

In addition, direct causative verbs may be verbs of 'saying', while the similar verbs in indirect causatives are not. This is the case with guarantee and suggest (but not persuade).

Pro-agentive verbs can, of course, not appear in indirect causatives, and it seems difficult to provide reasonable decompositions for such pro-agentive verbs as promise, ask, coax which take complement structures like 9.31 and 9.33 above. This is not surprising if I am correct, because such verbs would not be from cause plus another verb.

Argument 4. The adverb rather, when it comes after the subject and means 'somewhat' (not when it is part of a correlative), occurs only in indirect causatives. Compare 9.35, which has both a direct causative reading (agentive) and an indirect causative reading (non-agentive), with 9.36, which has only the latter reading.

9.35. John frightened the baby.

9.36. John rather frightened the baby.

I suppose that this rather is really a degree adverb that modifies the adjective of the lower sentence, as in 9.37.

9.37. John caused the baby to become rather frightened.

In this way we can account for why rather does not occur before a causative from cause plus a polar adjective; 9.38 is odd in the same way as 9.39.

9.38. ?John rather flabbergasted Mary.

9,39. ?Mary was rather flabbergasted.

So far as I can tell, this rather does not occur independently with verbs at all; its presence in sentences like 9.36 can be traced to its being given a "free ride" by predicate-raising, the transformation that attaches the lower verb or adjective to *cause* (see Chapter Five). The presence of *rather* is a sign that predicate-raising has taken place, and this is why it does not appear in direct causatives, in whose derivations predicate-raising has not applied.

Of course there are adverbs which cannot be moved by predicate-raising; e.g., *very* and *extremely*.

Argument 5. If there is no special emphasis on some sentence element, the main stress of a clause usually comes at the end. This generalization is captured in Chomsky and Halle (1968) by the nuclear stress rule. Direct causatives are unexceptional in this regard.

9.40. John ate the físh.

9.41. John cleverly frightened the báby.

However, indirect causatives with verbs that take experiencers (psych verbs) have the main stress on the verb.

9.42. The dark room fríghtened the baby.

9.43. John dissátisfied Mary.

If the main stress in 9.42 and 9.43 is placed on the object, the object is given special emphasis.

Sentences like 9.42 - 9.43 need not be regarded as exceptions to the nuclear stress rule. Notice that in 9.44 (the source of 9.42) *frighten* comes at the end of its clause.

9.44. The dark room caused the baby to become fríghtened.

We can therefore account for the placement of the main stress in indirect causatives with experiencer objects by applying the nuclear stress rule before predicate-raising and by letting the complex verb that results from predicate-raising take its stress from what was the lower verb. If this treatment of stress is correct, it follows that at the stage of derivation where the nuclear stress rule applies, indirect causatives appear in their decomposed versions, but direct causatives have their superficial forms. This indicates that the verbs of direct causatives are not decomposable.

This stress difference between direct and indirect causatives is consistent with the above observations. For example, 9.45 with main stress on *baby* does not exhibit neutral stress, but emphasizes *baby*.

9.45. John rather frightened the báby.

Similarly, when *frighten* (or any other psych verb) has an inanimate subject or takes a causative *by*-clause, the main stress is on the verb in a neutral sentence.

This treatment supposes that the nuclear stress rule precedes predicate-raising. There is some independent evidence that this might be the correct ordering. In Bresnan (1970) it is argued on the basis of such examples as 9.46 and 9.47 that the nuclear stress rule applies within the transformation cycle.

9.46. John has plans to léave.

9.47. John has pláns to leave.

The main stress of 9.46 comes at the end in regular fashion. In 9.47 however, *leave* is protected from receiving the main stress by the following noun phrase *plans*, which is deleted under coreference with the preceding *plans*. 9.47 comes from [John has plàns$_i$ to leave pláns$_i$];

when plans is deleted it carries the main stress with it. This results in a comparatively stronger stress on plans than on leave. Since the nuclear stress rule is known on other grounds to be cyclic (see Chomsky and Halle, 1968), and since it here precedes a syntactic deletion, there seems to be no reason to think that it does not apply within the transformational cycle.

If now it could be shown that predicate-raising is post-cyclic, the required ordering (first the stress rule then predicate-raising) would be demonstrated. The only indication I know of that predicate-raising is post-cyclic is a rather tentative statement in Lakoff (1969), where it is argued that dissuade must be formed from persuade not, presumably by predicate-raising, subsequent to the 'cut-off point' for a certain constraint. Lakoff further conjectures that this cut-off point may be the end of the cycle. I will not repeat the details here, because Lakoff's treatment is involved and leads to no certain conclusion that would advance the present argument.

It should be noted that this treatment of the stress difference between indirect and direct causative psych verbs is inconsistent with the contention in Chapter Five that no element may intervene between the two verbs involved in predicate-raising: the preceding has assumed that an experiencer noun phrase intervenes. I see no way to resolve this inconsistency, and so I conclude that either the present treatment of stress or the argument in Chapter Five must be incorrect. Another problem is that classes of verbs in indirect causatives other than the psych verbs like frighten do not display this peculiar verb stress.

Perhaps this indicates that at the time sentences are stressed, only agents and experiencers are subjects. In fact, of the arguments given for agents being the only deep subjects, only the predicate-raising argument and the like-subject argument (Chapter Six) have any bearing on whether experiencers are deep subjects; the other arguments concern only the subjects of causatives, which are never experiencers. Moreover, there are apparent exceptions to the like-subject argument when the lower subject is an experiencer (see example 6.27). However, an extension of the hypothesis to characterize experiencers as well as agents as deep subjects is not straightforward, and I have little positive evidence for such an extension.

That concludes the evidence for decomposing the verbs of indirect causatives but not those of direct causatives. This seems an appropriate place to mention a general difficulty with the approach in the case of psych verbs which we may call "anthropomorphic"--verbs with experiencer objects that are typically human. Non-agentive sentences with these verbs are not exact paraphrases of the corresponding cause sentences, because in the simple sentences the experiencer is presupposed to perceive the referent of the subject noun phrase. Compare 9.48 and 9.49.

9.48. The lamp persuaded Mary that she was in Borneo (by having a peculiar shape).

9.49. The lamp caused Mary to believe she was in Borneo (by falling on her head).

I think that in 9.49 Mary need not have perceived the lamp, but that she must have in 9.48. One proposal that could be made here is that the lamp in the intended interpretation of 9.49 is an instrumental subject and is not from a by-clause.

CHAPTER TEN

-LY ADVERBS

I argued in Chapter Eight that non-agent subjects of verbs which take causative by-clauses are in fact from by-clauses; that is, the subjects of indirect causatives come from by-clauses. This chapter provides evidence to support that claim. There is a constraint on the underlying relationship of an -ly adverb and the noun phrase to which it refers--both must originate in the same clause. -ly adverbs in causative sentences may refer to agent subjects, but they may not refer to the non-agent subjects of indirect causatives; this indicates that the latter come from lower sentences.

Reference has already been made in Chapter One to the fact that adverbs like enthusiastically, eagerly, and cleverly provide tests not only for non-stativity, but also for agentiveness. Lakoff (1966) points out that the class of adverbs in question are subcategorized with respect to the subjects of sentences in which they occur. That is, such adverbs refer to subjects. To say 'Harry did it cleverly' is to say that Harry was clever in some respect. But it is not the case that all -ly adverbs which refer to noun phrases provide tests for agentiveness. Some adverbs may refer to non-agent subjects, as in 10.1 - 10.3.

10.1. The mountain loomed over them $\left\{\begin{array}{l}\text{whitely}\\ \text{snowily}\\ \text{greenly}\\ \text{redly}\\ \text{stonily}\end{array}\right\}$.

10.2. The wood burned wetly.

10.3. The road ran smoothly into the city.

The difference between the two classes of adverbs seems to consist in whether they presuppose animacy of the noun phrases they refer to. *Whitely*, *greenly*, etc. may refer to inanimate noun phrases, but *cleverly*, *eagerly*, etc. may not. Moreover, *cleverly*-type adverbs refer only to agents and either assert or presuppose intentionality on the part of the agent. Our concern here will be with *whitely*-type adverbs--i.e. those which may refer to non-agents.

Let us now ask what constraints there are on adverb reference. I propose that one such constraint is that the adverb and the noun phrase to which it refers must not come from different underlying clauses. Consider first a rather trivial example of this constraint. In 10.4, *palely* refers not to *John* but to *the mountain*.

10.4. The mountain John had climbed glimmered palely.

I suppose that *palely* in the underlying structure of 10.4 is in the clause whose main verb is *glimmer*--the main clause. It is possible that such adverbs actually come from higher sentences which do not appear in surface structure; Lakoff (1965) proposes a higher sentence analysis for *cleverly*-type adverbs. Although the wording of the present argument might be affected if such an analysis proved necessary, I think that nothing crucial hinges on whether the superficial interpretation accepted here is correct or not.

Before proceeding further, we will need some criteria for deciding what clause an adverb goes with. Consider 10.5:

10.5. John lifted the man who polished windows cleverly.

It is apparent that cleverly need not be a part of the main clause, but may go with the relative clause and refer to the man. On the other hand, in 10.6, cleverly is part of the main clause and refers to John.

10.6. John cleverly lifted the man who polished windows.

I believe that the state-of-affairs exemplified in 10.6 is typical; an -ly adverb in second position (between subject and verb) goes with the clause whose main verb it immediately precedes. 10.7 - 10.8 provide a similar contrast.

10.7. John told Harry to say it angrily.

10.8. John angrily told Harry to say it.

Angrily may refer to Harry in 10.7, but not in 10.8, where it goes with the main clause and by the referral constraint can refer only to John.

Let us now examine some more interesting cases of the adverb referral constraint--cases where the adverb of the noun phrase to which it refers are in the same superficial clause, but are from different clauses in underlying structure. Simple noun phrase subjects of prove to, turn out to, and grow to are from lower sentences; they are moved into subject position by subject-raising (see Rosenbaum, 1967). The adverb referral constraint thus accounts for the unacceptability of 10.9 - 10.11.

10.9. *The forest greenly proved to be the best investment.

10.10. *John redly turned out to love asparagus.

10.11. *John palely grew to hate his sister.

The adverbs in 10.9 - 10.11 are in second position and are in the main clauses in underlying structure. Since the superficial subjects are the only noun phrases to which the adverbs could refer, and since these subjects are from lower clauses, the underlying structures of 10.9 - 10.11 violate the adverb referral constraint.

Notice, however, that an account of the unacceptability of 10.9 - 10.11 based on some verb-adverb constraint is unlikely to be correct. Adverbs which do not refer to noun phrases may occur in sentences corresponding to 10.9 - 10.11:

10.12. The forest gradually proved to be the best investment.

10.13. John suddenly turned out to love asparagus.

10.14. John slowly grew to hate his sister.

The behavior of adverbs in construction with begin is slightly more complicated. When begin takes a sentential object, its subject may be its deep subject or may come from the sentential object by subject-raising (see Chapter Three and Perlmutter, 1968). The like-subject requirement (Chapter Six) is called into play when begin has a deep subject; the sentential object is required also to have a deep subject (i.e., is required to be agentive). It follows that begin may not have a deep subject (an agent) and at the same time have a sentential object with an anti-agentive verb. We can predict now that an -ly adverb may not refer to the superficial subject of begin if the verb of the sentential object is anti-agentive. Note the contrast between 10.15 with a pro-agentive verb in the complement, and 10.16 with an anti-agentive verb.

$$\text{10.15. John} \left\{\begin{array}{l}\text{palely}\\ \text{whitely}\\ \text{redly}\end{array}\right\} \text{began to berate Mary.}$$

$$\text{10.16. *John} \left\{\begin{array}{l}\text{palely}\\ \text{whitely}\\ \text{redly}\end{array}\right\} \text{began to have doubts.}$$

If the subject of begin is inanimate, it cannot be an agent and must come from the sentential object; this, together with the adverb referral constraint, accounts for the unacceptability of 10.17.

$$\text{10.17. *The butter was} \left\{\begin{array}{l}\text{runnily}\\ \text{yellowly}\\ \text{softly}\\ \text{greasily}\end{array}\right\} \text{beginning to seem more rancid.}$$

As in the previous case, adverbs which do not refer to noun phrases may occur in sentences whose subjects come from lower clauses:

$$\text{10.18. John} \left\{\begin{array}{l}\text{suddenly}\\ \text{gradually}\\ \text{slowly}\end{array}\right\} \text{began to have doubts.}$$

$$\text{10.19. The butter was} \left\{\begin{array}{l}\text{suddenly}\\ \text{gradually}\\ \text{slowly}\end{array}\right\} \text{beginning to seem more rancid.}$$

There is an additional prediction that the adverb referral constraint allows us to make. A sentence with begin which may be either agentive or non-agentive will be disambiguated by the addition of an adverb referring to its subject. The ambiguity of 10.20 was noted above in Chapter Three; 10.21 is unambiguously agentive.

10.20. John began to run across the pavement.

10.21. John $\left\{\begin{array}{l}\text{redly}\\ \text{whitely}\end{array}\right\}$ began to run across the pavement.

I have given some evidence for the adverb referral constraint; we can now use this constraint to show that the non-agent subjects of indirect causatives come from lower sentences, but that agent subjects of direct causatives do not come from lower sentences. If we consider only sentences with the causative verbs that take causative by-clauses, there are at least three factors which require an indirect, non-agentive reading. First, when the subject is inanimate it cannot be an agent and must come from a by-clause. This predicts the difference in acceptability between 10.22 and 10.23.

10.22. John whitely prevented us from sitting down.

10.23. *The snow whitely prevented us from sitting down.

Secondly, the presence of a causative by-clause with an anti-agentive verb phrase indicates that the main sentence has no deep subject. If there were a deep subject, the by-clause would violate the like-subject requirement. Consequently an adverb may not refer to the main subject when the by-clause has an anti-agentive verb.

10.24. John palely prevented us from sitting down by moving the chair.

10.25. *John palely prevented us from sitting down by falling asleep on the chair.

Third, the causative verb may be anti-agentive, hence the unacceptability of 10.26.

10.26. *John redly gave Mary an urge to vomit.

In addition, the adverb referral constraint correctly predicts 10.24 above to be unambiguously agentive.

The evidence presented above supports the analysis of indirect causatives given in Chapter Eight. The fact that adverbs may refer to agent subjects supports the claim that agents are the only deep subjects, but only in the narrowly restricted domain of sentences with verbs that take causative by-clauses.

CHAPTER ELEVEN

CROSSOVER EVIDENCE

In his study "The Crossover Principle" (1968), Paul Postal proposes a constraint on the movement of noun phrases by transformation. The constraint is that in certain circumstances (the details of which I will not go into) a noun phrase cannot be moved over a noun phrase presupposed to be coreferential with it. The evidence is provided by examples like 11.1, which is not acceptable providing the reflexive has no special emphasis or stress. (If there is stress, the coreferentiality is asserted, not presupposed.)

11.1. ?John was killed by himself.

The passive transformation in the derivation of 11.1 would involve moving John across coreferential John; thus the crossover constraint accounts for the unacceptability of this sort of sentence.

Now it turns out that in most cases the superficial subject of an indirect causative cannot be coreferential with a constituent of the verb phrase, whereas an agent subject of a direct causative can be followed by such a coreferential element. Granted the crossover constraint, we must assume that the non-agent subject of indirect causatives have been moved into subject position across the elements of the verb phrase. It follows that these non-agent subjects are not deep subjects; as it also follows that agent subjects do not move across elements of the verb phrase, and so may well be deep subjects (although, so far as this evidence goes, agents could just as well come from immediately after the verb). This, then, is the argument. The rest of the chapter will be devoted to establishing the fact on which it is based and to pointing out the inevitable exceptions.

Consider the contrast in acceptability between 11.2 and 11.3.

11.2. John frightened Mary himself.

11.3. *The mountain frightened Mary itself.

In 11.3, _the mountain_, being inanimate, cannot be an agent; _frighten_ takes a causative _by_-clause, and consequently a non-agent subject of _frighten_ must come from a _by_-clause. Since this type of reflexive precedes a _by_-clause, _the mountain_ must have moved over _itself_ in the derivation of 11.3. In this particular example, the _by_-clause is unspecified except for its subject and has been deleted. Strictly speaking one step of this reasoning does not follow; it cannot be established certainly that causative _by_-clauses come after this kind of reflexive, since they do not co-occur with it. But it is a plausible conjecture that a causative _by_-clause would come after the reflexive, because this is the position of method _by_-clauses:

11.4. John ate the fish himself by using a trowel.

In 11.2, however, _John_ is an agent and no crossover violation is produced. Moreover 11.2 is unambiguously agentive; without the reflexive it would be ambiguous.

Another fact about this sort of reflexive that can now be explained is the incompatibility of such a reflexive with a _by_-clause that has an anti-agentive verb:

11.5. John frightened Mary by casting a shadow.

11.6. John frightened Mary himself by throwing a pebble.

but 11.7. *John frightened Mary himself by casting a shadow.

The anti-agentive verbal phrase _cast a shadow_ in 11.7 means that the _by_-clause cannot have a deep subject and therefore cannot meet the deep like-subject requirement that would be called into play if _frighten_ had a deep subject. _John_ must therefore be in its surface position by virtue of subject-raising and must have moved across _himself_.

Similarly an anti-agentive main verb that takes a causative _by_-clause is incompatible with this particular reflexive, whether or not the _by_-clause appears on the surface:

11.8. *John necessitated our departure himself.

11.9. *John gave Mary a strange urge himself.

11.10. *John amazed Mary himself.

The next case to consider is that of a direct object coreferential with the subject. Compare 11.11 - 11.12, which are paraphrases, with 11.13 - 11.14.

11.11. The iron's becoming incorporated into it caused the crystal to become opaque.

= 11.12. The iron caused the crystal to become opaque by becoming incorporated into it.

11.13. The crystal's incorporating iron caused it to become opaque.

11.14. *The crystal caused itself to become opaque by incorporating iron.

Similar examples are 11.15 - 11.22.

11.15. The tube's developing a short caused the radio to use too much current.

= 11.16. The tube caused the radio to use too much current by developing a short.

11.17. The radio's developing a short caused it to use too much current.

11.18. *The radio caused itself to use too much current by developing a short.

11.19. The vegetation's growing profusely prevented the soil from eroding.

= 11.20. The vegetation prevented the soil from eroding by growing profusely.

11.21. The soil's acquiring a layer of vegetation prevented it from eroding.

11.22. *The soil prevented itself from eroding by acquiring a layer of vegetation.

Thus indirect causative verbs cannot be followed by itself because of the crossover constraint. It might seem that 11.13, 11.17 and 11.21 should also involve a crossover violation; but in these cases where the whole by-clause becomes subject, it is not the coreferential noun phrase specifically that is being moved, but a constituent containing it. As Ross (1967) has shown, crossover violations do not occur in this situation.

Just as in the first case considered, when subject and object are coreferential, a non-agentive by-clause is impossible (11.23), and a normally ambiguous sentence becomes unambiguously agentive (11.24).

11.23. *John caused himself to fall down by having slippery shoes.

11.24. John caused himself to fall down by dropping grease on the floor.

I do not have at hand an anti-agentive indirect causative verb that takes an infinitival complement, but as it happens subjects of gerundive complements work like subjects of infinitival complements even though the subjects do not become constituents of the verb phrase. So necessitate will serve to illustrate that the subject of an anti-agentive verb moves across the object:

11.25. *John necessitated his own departure.

If it is not obvious that sentences like 11.2 and 11.24 are really ambiguously agentive, it should suffice to point out that such sentences cannot occur in anti-agentive contexts:

11.26. John turned out to frighten Mary.
but 11.27. *John turned out to frighten Mary himself.
11.28. John turned out to prevent Mary from committing suicide.
but 11.29. *John turned out to prevent himself from committing suicide.

So far the examples have involved verbs that take abstract objects and by-clauses. Verbs that take an experiencer in addition work the same way:

11.30. John's having his fingers crossed reminded Mary to pick up lettuce.
= 11.31. John reminded Mary to pick up lettuce by having his fingers crossed.
11.32. John's having his fingers crossed reminded him to pick up lettuce.
11.33. *John reminded himself to pick up lettuce by having his fingers crossed.

11.34. John's feeling no pain satisfied the doctors that he was drugged.

= 11.35. John satisfied the doctors that he was drugged by feeling no pain.

11.36. John's feeling no pain satisfied him that he was drugged.

11.37. *John satisfied himself that he was drugged by feeling no pain.

11.38. John's being drunk persuaded Mary to drive home.

= 11.39. John persuaded Mary to drive home by being drunk.

11.40. John's being drunk persuaded him (not) to drive home.

11.41. *John persuaded himself (not) to drive home by being drunk.

11.42. Their coming across their own footprints persuaded the guide that they were lost.

= 11.43. They persuaded the guide that they were lost by coming across their own footprints.

11.44. Their coming across their own footprints persuaded them that they were lost.

11.45. *They persuaded themselves that they were lost by coming across their own footprints.

Such anti-agentive verbs cannot have reflexive objects:

11.46. *John gave himself a strange urge.

The versions with reflexive objects are unambiguously agentive and are rejected in anti-agentive contexts:

11.47. John turned out to persuade Mary that she should drive.

but 11.48. *John turned out to persuade himself that he should drive.

Verbs whose experiencer objects are preceded by to work no differently:

11.49. John's falling asleep suggested a solution to Mary.

= 11.50. John suggested a solution to Mary by falling asleep.

11.51. John's falling asleep suggested a solution to him.

11.52. *John suggested a solution to himself by falling asleep.

11.53. John's liking fish proved to Mary that George was right.

= 11.54. John proved to Mary that George was right by liking fish.

11.55. John's liking fish proved to him that George was right.

11.56. *John proved to himself that George was right by liking fish.

However verbs that take only an experiencer and a by-clause do not seem to come up to expectation. It has been claimed that psych verbs do not take reflexive objects (Postal, 1968), but I find 11.57 acceptable provided they are construed non-agentively. That is, the relation of agentiveness with the coreferentiality of subject and object is just the opposite of what I would predict.

11.57. John $\left\{\begin{array}{l}\text{annoyed}\\ \text{frightened}\\ \text{pleased}\\ \text{terrified}\end{array}\right\}$ himself.

Some of the anti-agentive anthropomorphic psych verbs do produce violations:

11.58. *John $\left\{\begin{array}{l}\text{flabbergasted}\\ \text{gratified}\end{array}\right\}$ himself.

I cannot account for the anomaly of 11.57.

Complex indirect causatives that take sentential objects whose subjects may be raised into the verb phrase, like _prove_, _show_, _demonstrate_, are exceptions. 11.59 is either agentive or non-agentive, and 11.60 is acceptable.

11.59. John proved himself to be the right man.

11.60. John proved himself to be the rightful heir by disliking fish.

But a noun phrase coreferential with the main subject that is inside a sentential object never produces a crossover violation:

11.61. John persuaded Mary that he (John) was the heir by disliking fish.

11.62. John proved to them that he (John) was a doctor by having a black bag.

I suppose that the _that_-clause somehow protects its noun phrases from producing crossover violations. If the infinitival complements in 11.59 - 11.60 are from _that_-clauses and if raising the subject from the _by_-clause takes place before the _that_-clauses are converted to infinitives, then one accounts for the exceptional nature of 11.59 - 11.60.

I am quite sure that many people will disagree with the preceding examples in some measure. I hope that most will at least agree that the crossover violations I claim exist produce a contrast in acceptability.

Cases where inanimate subjects of causatives allow reflexives after the causative are 11.63 - 11.65.

11.63. The meteorite embedded itself in the hillside.

11.64. Work increases itself to fill the time available.

11.65. The cyclone exhausted itself on the shores of Maine.

Such examples force me to choose between rejecting the crossover argument for getting non-agent subjects of true causatives from the right of the causatives' object complements or else accepting a notion of agent which does not require intention or animacy. As one might expect, I will choose the latter course. There is another reason for counting some inanimates as agents. The sorts of subjects that are allowed in constructions like 11.63 - 11.65 are typically natural forces or machines. This sort of subject may also occur as the subject of a change-of-state verb, as in 11.66.

11.66. The cyclone broke the window.

Fillmore has proposed that (physical) change-of-state verbs take either instruments or agents as subjects. (Object subjects obviously do not come into question here.) In 11.66, the subject is obviously not an instrument, so it must be an agent. In addition, such subjects occur in the object complement of succeed in, which otherwise requires an object complement with an agent or experiencer subject:

11.67. The meteorite succeeded in embedding itself in the hillside.

11.68. The cyclone succeeded in destroying a lot of property.

but 11.69. ?The hammer succeeded in breaking the window.

11.70. ?The waxed floor succeeded in making Mary slip.

CHAPTER TWELVE

AGENTS AND CAUSATIVES

Most linguists would agree that one criterion for a good syntactic analysis is that it provide some semantic elucidation. The proposal that agents are deep subjects makes no obvious gain in this regard; making agents deep subjects tells us no more about their meaning than does providing agents with the label 'Agent' in underlying structures. Here I will consider several possibilities for syntactic reconstructions of semantic properties of agents.

As a preliminary, consider Fillmore's definition of the agentive case quoted above in Chapter One: "...the case of the typically animate perceived instigator of the action identified by the verb" (Fillmore, 1968, p. 24). One way to approach the analysis of such a definition is to regard the terms as linguistic rather than as metalinguistic. Taking this approach, we might find that a property of the English verb instigate tells us in part why Fillmore's definition seems appropriate; instigate requires an agent subject.

Another semantic property of agents has to do with intention. I suggested in Chapter One that an agent is a noun phrase whose referent is not presupposed not to have intention. But if a noun phrase in a sentence may not be referred to by an adverb of intention (e.g. intentionally), then surely its referent is presupposed by the sentence not to have intention. This semantic property will therefore have a syntactic reconstruction if it can be shown that adverbs of intention must refer to subjects in underlying structure. Although at present I do not know how to show this in general, it does not seem to me to be an unreasonable view. The special case in which the verb may take a causative *by*-clause was discussed in Chapter Ten.

Agents have the semantic property of "independent action". Most agentive sentences assert or presuppose that their agents act in a way that could have been avoided. I think there is some prospect of a syntactic account of the "independence" of agents through an appeal to the cross-over constraint. I showed in Chapter Eleven that in some cases reflexives have the effect of requiring agents by virtue of the cross-over constraint. If the word *independent* could be shown to contain an implicit reflexive, we might be able to explain why it is not inappropriate to assert independence of an agent.

A more direct reconstruction of agentiveness would be provided in a theory which attributed agentiveness to a higher abstract verb. Suppose for the sake of illustration that "John killed Mary" had an underlying structure like 12.1.

12.1. $[_{S}\text{agentize John } [_{S}\text{kill Mary}]]$

It is important to note that although *John* is not a subject in 12.1, none of the arguments given in this dissertation would rule out 12.1 as a possible underlying structure. My evidence bears only on the underlying left-to-right order of subjects and other superficial sentence parts. With the possibility of such an abstract representation in mind, consider the following property of agentive sentences. An agentive sentence implies that its agent caused something; somehow implicit in the notion agentiveness is the idea of causation. Perhaps then the abstract verb has something in common with the verb *cause*. I give below some reasons for connecting agents with *cause*.

The conclusion of Chapter Nine implies that there are two entirely different environments for *by*-clauses. Causative *by*-clauses occur only with the verb *cause* when it has no agent; method *by*-clauses occur with many verbs just when they have agents. Yet the two types of *by*-clauses seem essentially the same. Their position in the sentence is the same; they come at the end. Their superficial appearances differ only in ways that can probably be attributed to the imposition of the deep like-subject requirement. They both display the shallow like-subject requirement. Both are manner adverbs and can be questioned with *how*. A positive sentence containing either type implies the truth of the sentence within the *by*-clause.

Considering all these similarities, one would like to talk of *by*-clauses, without any qualifier. But then it is incredible that *by*-clauses occur either with agents or with *cause* unless there is some connection between these environments. The natural conclusion, I think, is that *cause* always co-occurs with an agent. *By*-clauses can then be said to occur only as complements of the verb *cause*. In addition, it is not unreasonable to think that cause should play a significant role in the explication of what method by-clauses mean.

The adverb indirectly presents a similar case. In final position, indirectly occurs only in indirect causatives and agentives, leading one to suppose a close connection between the two. Also, it is difficult to imagine a satisfactory semantic account of indirectly that would not involve the notion of causation. Again, agentives seem to require cause or a cause-like verb.

The proposal that the antecedent of the deep like-subject requirement is a subject would require the decomposition of many verbs in direct causatives, each presumably into a verb like cause plus other verbs (see Grosu, 1970). One reason for thinking that this proposal might be correct is that the shallow like-subject requirement does seem to have a subject as antecedent, and one would like to identify the deep and the shallow requirements.

Finally, it can be no coincidence that most verbs in indirect causatives also occur in direct causatives, the non-agentive and agentive versions being closely related in meaning. That is, we must account somehow for the phonetic identity of persuade in indirect causatives (from cause to believe or intend) and persuade in direct causatives. If the verbs of direct causatives are decomposable, we can imagine a single lexical rule that substitutes persuade for a cause-like verb plus believe or intend.

In the absence of evidence that the "cause-like verb" of direct causatives is distinct from cause itself, the conclusion of Chapter Nine contradicts the above considerations. At present I do not consider that there is sufficient evidence for decomposing the verbs of direct causatives. There does, however, seem to be a syntactic as well as a semantic connection between cause and agents.

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